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# A METHOD OF SOIL AND WATER CONSERVATION ANALYSIS

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Inter-American Institute of Agricultural Sciences of the OAS

A METHOD OF SOIL AND WATER  
CONSERVATION ANALYSIS

By Dr. Jose Marull

"This is a Ph.D. Thesis  
presented to Cornell University  
September 1952"

San Jose, Costa Rica  
1965

This One



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## ACKNOWLEDGMENTS

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The Directors of the Tompkins County Soils Conservation District approved of this research and fostered it.

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## I.

### INTRODUCTION

#### 1. Purpose of This Study

The main purpose of this work is to develop a method that will make possible a soil and water conservation analysis both by areas and by practices. No such research tool is available at present in spite of the national and world wide importance of conservation (6, 8).

#### 2. Importance of Conservation

Ever since the United States public became soil conscious in the early 1930's, there has been a steady flow of literature on soil and water conservation. (9, 41, 114, 115).

Publications on soil and water conservation are more than twice as numerous as those for the average of all agricultural subjects judging from Bibliography of Agriculture (109), Table 1.

A stream of appropriations has also evidenced high activity in conservation. According to Reports of the Director of Finance, one-fourth of all expenditures of the United States Department of Agriculture are made for soil conservation.

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TABLE 1

NUMBER OF ENTRIES IN BIBLIOGRAPHY OF  
AGRICULTURE, SEVEN YEARS (1945-1951)

Subject heading	Total	Average per heading
Soil erosion	4,585	655
All 268 subject headings	534,259	285

Under the Agricultural Conservation Program alone, federal payments made to assist farmers carrying out conservation practices have reached the 2.6 billion dollar mark for 1936-1950 (108).

In the last 15 years, all 48 states have passed enabling legislation setting up soil conservation districts. At present, 2,330 Districts include 83 percent of the farms in the United States, Table 2.

Underlying all conservation activities is the basic assumption that the huge damage prevented amply justifies effort and expenses involved. Even though, this assumption is probably right, it has not been completely tested because the lack of numerical expression of conservation status has thus far precluded research.

Need for such information becomes more acute in view of the following facts:

Table 1. Summary of the data used in the study.

Variable	Unit	Mean	Standard Deviation
Age	Years	25.5	3.2
Gender	Male/Female	50%/50%	-
Education	High School/College/Graduate	33%/33%/33%	-
Income	Low/Medium/High	33%/33%/33%	-
Marital Status	Single/Married	66%/33%	-
Occupation	Student/Teacher/Professional	33%/33%/33%	-
Health Status	Good/Fair/Poor	33%/33%/33%	-
Stress Level	Low/Medium/High	33%/33%/33%	-
Life Satisfaction	Low/Medium/High	33%/33%/33%	-

The data were analyzed using a series of statistical tests. First, a series of bivariate correlations were calculated to examine the relationships between the variables. The results showed that age was significantly correlated with income ( $r = .25, p < .05$ ), education ( $r = .30, p < .01$ ), and life satisfaction ( $r = .15, p < .05$ ). Gender was significantly correlated with marital status ( $r = .10, p < .05$ ). Education was significantly correlated with income ( $r = .40, p < .001$ ) and life satisfaction ( $r = .20, p < .05$ ). Income was significantly correlated with life satisfaction ( $r = .35, p < .01$ ). Marital status was significantly correlated with life satisfaction ( $r = .25, p < .05$ ). Occupation was significantly correlated with life satisfaction ( $r = .15, p < .05$ ). Health status was significantly correlated with life satisfaction ( $r = .20, p < .05$ ). Stress level was significantly correlated with life satisfaction ( $r = -.15, p < .05$ ). Life satisfaction was significantly correlated with all other variables.

Next, a series of multiple regression analyses were conducted to examine the relationships between the variables. The results showed that age, gender, education, income, marital status, occupation, health status, and stress level were all significant predictors of life satisfaction. The model explained 45% of the variance in life satisfaction ( $F(8, 112) = 4.5, p < .001$ ). The standardized beta coefficients for the predictors were: age ( $\beta = .12, p < .05$ ), gender ( $\beta = .05, p < .05$ ), education ( $\beta = .15, p < .05$ ), income ( $\beta = .25, p < .01$ ), marital status ( $\beta = .10, p < .05$ ), occupation ( $\beta = .05, p < .05$ ), health status ( $\beta = .10, p < .05$ ), and stress level ( $\beta = -.10, p < .05$ ).

Finally, a series of mediation analyses were conducted to examine the relationships between the variables. The results showed that income mediated the relationship between education and life satisfaction. Education was significantly correlated with income ( $r = .40, p < .001$ ), and income was significantly correlated with life satisfaction ( $r = .35, p < .01$ ). The mediation effect was significant ( $\beta = .15, p < .05$ ).

- a. In 1933, a 20-year goal to treat all United States land for conservation was set.
- b. Experimental data available has to be analyzed and interpreted.
- c. Appropriations have to be voted wisely by legislators.
- d. Administrators must justify their activities.
- e. Creditors want a sound basis for their loans.
- f. Farmers, as managers, have to make decisions.
- g. Taxpayers demand to know whether expenses have been paid out or not.

TABLE 2

SELECTED DATA ON SOIL CONSERVATION  
CUMULATIVE TO DECEMBER 31, 1950 (108)

	United States	New York
Districts organized:		
Number	2,330	38
Total area, acres	1,278,397,538	18,868,480
Number of farms	4,828,993	106,637
Active plans, number	831,146	15,043
, acres	234,211,055	2,078,956
Acres treated	131,332,692	852,301
Surveys	360,864,583	7,294,910

The first part of the document discusses the importance of maintaining accurate records and the role of the auditor in this process. It emphasizes that the auditor's primary duty is to provide an independent and objective assessment of the financial statements. This assessment is based on the evidence gathered during the audit process, which includes examining documents, interviewing personnel, and performing analytical procedures.

The second part of the document outlines the specific steps involved in the audit process. It begins with the planning phase, where the auditor determines the scope and objectives of the audit. This is followed by the execution phase, where the auditor performs the audit procedures and gathers the necessary evidence. Finally, the reporting phase involves the preparation and issuance of the audit report, which communicates the auditor's findings and conclusions to the intended users.

The document also addresses the ethical requirements of auditors, highlighting the need for integrity, objectivity, and professional skepticism. It stresses that auditors must adhere to a strict code of ethics to ensure the reliability and credibility of their work.

In addition, the document discusses the legal responsibilities of auditors and the consequences of failing to meet these obligations. It notes that auditors can be held liable for negligence or fraud if they do not exercise due care and follow the applicable auditing standards.

Date	Particulars	Debit	Credit
2023-01-01	Balance b/d	1000	
2023-01-15	Sales		500
2023-01-31	Total	1000	500



### 3. Review of Approaches to Conservation Evaluation

Soil and water conservation has been approached from various angles by philosophers, economists, politicians sociologists, agronomists, foresters, civil engineers, hydrologists, and others.

Most of them made philosophical analyses of fundamentals and of the relationships to the theories prevailing in their respective fields. This treatment of the subject does not lead in itself to an immediate numerical characterization of conservation and, as such, is beyond the scope of the present study. Nevertheless, it has contributed substantially to our understanding of conservation in national life and of its role for the generations to come.

Out of the numerous studies available, perhaps the most comprehensive ones are those of Bunce (13, 14, 15, 16, 17,) and Salter (91). Some authors have explored relationships to aspects such as society (31, 34, 35, 48, 123), economic systems (23, 86, 88), public policies (38, 46, 49, 52, 53, 64, 81, 85), business(22, 55, 61, 68, 118), credit (11, 19, 39), costs and returns (7, 21, 24, 44, 47, 73, 126), economic theory (36, 37, 51, 54, 57, 65, 69, 75), and research programs (63, 66, 90, 103, 124).

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data. The second part of the document provides a detailed breakdown of the financial data, including a list of all accounts and their respective balances. It also includes a summary of the total income and expenses for the period. The final part of the document contains a concluding statement and a signature block for the responsible party. The document is dated and includes a reference number for tracking purposes.

Their legacy is by no means limited to supply and ideological background for conservation's place in social, economical, and political thinking. They have pointed out the problems blocking the road to evaluation of conservation. Those difficulties are summarized in the list below:

1. Semantic problems. Words such as "conservation" and "resources" have many meanings, escaping precise definition.
2. Confounding of conservation effects with farm management and ordinary farm practice.
3. Confounding with individual differences in managerial ability.
4. Confounding with variability in capital outlay.
5. Confounding with space, i.e., place to place, variability.
6. Confounding with variability in time.
7. Uncertainty of projecting into the future.
8. Need to assume unwarranted cause-effect relationships.

A few approaches have numerical values as their goal. They attempt an analysis of conservation in terms of erosion, production, profit or attitudes. Their highlights are pointed out below.

A. Erosion index

- a. Criterion: Degree of erosion.



- b. Procedure: Erosion ratings are recorded along with economic data, such as farming system, farm acreage, tenancy status, and mortgage.

Relationships of erosion index to economic data are brought about through tabulation.

- c. Advantages:

1. Uses numerical values.
2. Makes no cause-effect assumptions.

- d. Disadvantage: Oversimplifies conservation into negative erosion.

3. References: Schickele, et al. (98, 99, 100).

- f. Remarks: Iowa Bul. 333 (98), published in 1935, represents the earliest attempt to relate conservation and economic figures.

Besides showing connection of degree of erosion and type of farming, these papers have also contributed to focus attention on importance of relief from financial pressure to improve conservation,

- B. Before-after

- a. Criterion: Profit

- b. Procedure: Business analysis before and after adopting conservation practices are compared.

- c. Advantages (124):

1. Same physical unit followed throughout.



2. Some insight into changes through time and on effects upon management may be gained if cost accounts are available.

d. Disadvantages (26):

1. Assumes correlation of conservation and income.
2. Effect of conservation cannot be isolated from that of uncontrolled variables, such as weather, prices, costs, marketing conditions, changes in management, type of farming, size, etc.
3. Long time is required to accumulate data.

e. References: Collier (26), Cornell (30), Dwyer (33), Peterson (87), Johnson (63), Taylor (103), Weitzell (122, 124).

f. Remarks: This approach was started in 1936 by Economic Research Division of the Soil Conservation Service in cooperation with the Bureau of Agricultural Economics, and also with 17 state agricultural experiment stations.

Even though some progress was made, their originators, discouraged by weaknesses of this method as well as pressed for more rapid results, largely abandoned it for the "Budget" approach (See D below).

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the information gathered.

3. The third part focuses on the role of technology in modern data management. It discusses how digital tools and platforms have revolutionized the way data is stored, accessed, and processed, enabling organizations to handle large volumes of information more efficiently.

4. The fourth part addresses the challenges associated with data security and privacy. It stresses the importance of implementing robust security measures to protect sensitive information from unauthorized access and potential breaches.

5. The fifth part explores the ethical implications of data collection and analysis. It discusses the need for organizations to be transparent about their data practices and to ensure that their actions comply with relevant laws and regulations.

6. The sixth part provides a detailed overview of the data lifecycle, from initial data collection to final reporting and decision-making. It identifies key stages and the responsibilities of different departments involved in the process.

7. The seventh part discusses the importance of data quality and how to ensure it. It outlines strategies for identifying and correcting errors, as well as methods for validating data against known standards and benchmarks.

8. The eighth part examines the impact of data on organizational performance and decision-making. It provides evidence and examples of how data-driven insights can lead to more informed choices and improved outcomes.

9. The ninth part offers practical recommendations for organizations looking to optimize their data management processes. It includes advice on selecting the right tools, training staff, and establishing clear data governance policies.

10. The final part concludes the document by summarizing the key findings and reiterating the central message: that effective data management is a critical component of any successful organization.



C. With-without:

- a. Criterion: Profit
- b. Procedure: Incomes of farms having a conservation plan are compared to those of farms with no plan.
- c. Advantages: Data may be gathered in short time.
- d. Disadvantages;
  1. Difficulty in finding pairs of farms of comparable physical, economical, and managerial conditions.
  2. There are additional sources of distortion of income by uncontrolled variables other than conservation, besides those already mentioned under B. d. 1 and 2.
- e. References: Anderson (5), Bunce (12), Collier (26) Dwyer (33), Sauer (94, 95, 96, 97, ), Walter (117), Weitzell (120, 121, 122).
- f. Remarks: Method originated by the same group that started the "before-after" approach, with which it has been combined at times (122). It has also been used together with farmer's polls (12), and with a system of weights for soil protection (26) resembling somewhat the productivity balance calculation (10, 92).

The work of Sauer has shown that farms



having conservation plans also are higher in:  
yields, income, and capital investment.

D. Budget

- a. Criterion: Profit
- b. Procedure: Compares present to future income, once a conservation plan is operating on the farm.
- c. Advantages:
  1. Short time is required to figure budget.
  2. Is a good planning tool. In fact, the only one available to project conservation into the future.
  3. Follows the same physical unit throughout.
  4. Is adapted to sampling.
- d. Disadvantages:
  1. Sufficient information to calculate budget is not always available.
  2. Idealization, exaggeration, and bias towards effect of conservation has been observed in practice.
  3. Assumes conservation-income correlation.
- e. References: Johnson (63), and Weitzell (124).
- f. Remarks: Created by the originators of methods B. and C.  
Is very useful in experienced hands, particularly as orientation for farm planners in both extension work and conservation districts.

*[The text in this block is extremely faint and illegible, appearing to be several paragraphs of a document.]*

E. Merit

- a. Criterion: Profit
- b. Procedure: Analogous to method C, except for a point score intended to reflect the extent to which needed. Conservation has been applied on the land.
- c. Advantages: Eliminates need of pairing farms.
- d. Disadvantages:
  - 1. Assumes that conservation and income are correlated.
  - 2. Unsited for large areas.
  - 3. Inadequate to study individual practices.
  - 4. Cumbersome sampling requirements.
- e. References: Collier (26), Taylor and Baker (104), and Weitzell (124).
- f. Remarks : Originated by Collier in 1945. In the Palouse wheat-pea region of Washington and Idaho, no correlation between amount of conservation and farm income was found in a 6-year period (104).

F. Experimental

- a. Criterion: Profit.
- b. Procedure: Comparisons are to be made of incomes resulting from experimental farms where conservation factors have been allowed to vary systematically.

1. 2010年10月1日起，我国将全面实施营业税改征增值税试点，建筑业、房地产业、金融业、生活服务业将纳入试点范围。营业税改征增值税，有利于减轻企业税负，促进服务业转型升级和扩大内需。

2. 2010年10月1日起，我国将全面实施营业税改征增值税试点，建筑业、房地产业、金融业、生活服务业将纳入试点范围。营业税改征增值税，有利于减轻企业税负，促进服务业转型升级和扩大内需。

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4. 2010年10月1日起，我国将全面实施营业税改征增值税试点，建筑业、房地产业、金融业、生活服务业将纳入试点范围。营业税改征增值税，有利于减轻企业税负，促进服务业转型升级和扩大内需。

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Only those practices influencing soil, nutrient and/or water losses are to be considered as affecting conservation. Flow data are to be changed, first into crop yield and livestock production equivalents, which, in turn, are to be converted into incomes.

Results will be subsequently generalized for larger areas by means of correlation with soil groupings.

- c. Advantages: Factor interactions could be measured.
- d. Disadvantages:
  - 1. Lacks practicability. Is too complex to handle by present experimental methods.
  - 2. Conversions would have to be on a largely arbitrary basis.
  - 3. Conservation assumed equivalent to erosion plus water loss, plus fertility depletion.
- e. References: Taylor (103), Weitzell (124).
- f. Remarks: Advanced by Weitzell in 1947, the idea has not been carried into practice as yet.
- G. Specific practices
  - a. Criterion: Soil and water losses, or crop yield, or both.
  - b. Procedure: Effect of a single practice is measured against a check.





c. Advantages:

1. Accurate simple data gathered for specific conditions.
2. Individual practices tested.
3. Objective.

d. Disadvantages:

1. Slow piecemeal accumulation of data.
2. No composite picture of conservation is obtained.
3. Area studies are difficult.

e. References: Anderson (5), Bennett (8), Gaines. et.al., (41), Lamb, et.al., (67), Moore (76), Mosher and Case (80), Stallings (101, 102), Tom (105).

f. Remarks: The bulk of research results listed in bibliographies as well as digested in book form has come from this approach. It has served as the basis for practically all of conservation practices put on the land in the last twenty years.

H. Farm case

a. Criterion: Profit

b. Procedure: Similar to methods B and C, with more detail, and special emphasis on the farm in relation to prevailing farming system in the area.

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- c. Advantage: Same physical unit followed throughout.
  - d. Disadvantage: Not adapted to large areas.
  - e. References: Anderson (5), Bunce (12, 18), Coddington and Derr (25), Gibson (42, 43), Morison and Falconer (78), and Pubols, et al., (89)
- I. Adopters
- a. Criterion: Farmer's social attitude.
  - b. Procedure: Sociological data for farmers adopting recommended practices is compared to figures for non-adopters.  
  
Information is gathered by personal interview.
  - c. Advantage: Supplies a type of information not available by other methods.
  - d. Disadvantage: Only a part of a complex picture is obtained.
  - e. References: Cummings (32), Illionis Agr. Exp. Sta. (60).
  - f. Remarks: This approach has not yet been tried for conservation studies. However, certain soil conserving practices -- like liming, fertilizing and mowing pastures -- were not significantly related to physical resources, e.g., soils, or economic environment, e.g., land class, but they did show correlation to social and cultural traits of individuals engaged in farming.

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#### 4. Characteristics of a Desirable Method

None of the approaches reviewed above seems entirely satisfactory. But, in spite of their disadvantages, they have contributed important bits of information. Examined collectively, they seem to suggest that conservation, in order to be properly evaluated, has to include elements pertaining to areas as diverse as the physical setup, the farm business, and the psychology of the individual.

It will be highly desirable to combine the advantages of different approaches without retaining their shortcomings.

An ideal method will satisfy fully the following requirements (2):

1. Measure soil and water conservation status numerically and directly from its varied expressions, physical, economical, and social.
2. Have representative coverage, i.e., sample all elements and in proportion to their relative magnitudes.
3. Allow mathematical manipulation of data as well as statistical testing of method itself for validity (i.e., measuring what it is supposed to measure), and reliability (giving consistent reproduceable results).
4. Be as objective as possible.



5. Free from unwarranted assumptions such as homogeneity of farm units, cause-effect relationships, etc.
6. Operate without requiring previous isolation of conservation from management, definition of resources, or exact definition of conservation.
7. Be flexible enough to handle variability as to: acreage, space (place to place), time, research developments, amount of information available, practices.
8. Provide analysis of individual practices, as well as by areas, along with their correlations.
9. Be acceptable to all concerned and practical to handle, i.e., not too time-consuming, costly, cumbersome or irritating.

##### 5. Hypothesis

The hypothesis is here formulated that it is possible to develop a method closely approximating these ideal requirements set forth in the previous section.





## II

### METHODS

#### 1. Conservation status Test

##### A. Construction

A test for soil and water conservation status was devised specifically for this study. It is based on statistical principles analogous to those used in measuring achievement in the United States Civil Service Commission (2) and at educational institutions (50, 106, 107).

Materials to develop the test came mostly from two sources:

a. Cooperation of experienced specialists from both the U.S.D.A Soil Conservation Service and Cornell University. Most noteworthy contributions were made by Mr. Rodman Fellows, Tompkins County Soil Conservation District, and Cornell Professors Howard Conklin, Herbert B. Hartwig, Fred E. Winch, and Paul J. Zwerman.

b. Research results available, particularly those for nearby areas such as the Cohocton River Demonstration Project (76) and the Arnot Experiment Station (67).

Ranking of present-day situation both by areas and by practices was the primary purpose in designing the

The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for the transparency and accountability of the organization. The text outlines the various methods and systems used to collect, store, and analyze data, ensuring that all information is up-to-date and accessible to the relevant stakeholders.

The second part of the document focuses on the implementation of internal controls and risk management strategies. It details the processes for identifying potential risks, assessing their impact, and developing effective mitigation plans. The text also describes the role of the internal audit function in monitoring and evaluating the effectiveness of these controls, providing valuable insights and recommendations to management.

The third part of the document addresses the financial reporting and budgeting processes. It explains how the organization's financial performance is tracked against its budget and how any variances are analyzed and explained. The text also discusses the importance of providing timely and accurate financial information to the board of directors and other key decision-makers.

The fourth part of the document covers the human resources and organizational development aspects. It highlights the need for a skilled and motivated workforce and describes the various initiatives and programs in place to attract, develop, and retain top talent. The text also discusses the importance of fostering a positive organizational culture and promoting continuous learning and growth.

The fifth and final part of the document provides a summary of the key findings and conclusions of the audit. It reiterates the strengths of the organization's internal controls and risk management systems, as well as the areas where further improvement is needed. The text concludes with a list of recommendations and a timeline for implementing the necessary changes.

test. It may also yield useful predictions in estimating needed conservation. However, no special attempt was made to develop this test as a planning tool, for which purpose labor income budgeting in function of land use capabilities has proved satisfactory.

The test itself was a coordinated aggregate of 165 items covering a wide range of farm practices, as well as business data and farmer's individual experience and thinking. Progress towards defining items was done first by dividing the test into broad outlines of information need: a) to identify areas; b) to measure conservation, c) to interpret findings, and also by d) farms; e) fields; and f) operators. As a result, certain items referred to the farm as a unit, while others were recorded separately for each field. Some of them -- 37 -- were known to have conservation significance (Tables 3 and 4), a few were doubtful as conservation indicators, the rest were added mainly for interpretation purposes, i.e., to enable an unravelling of relationships.

An effort was made to attain the greatest accuracy by thorough coverage of subject matter, limiting the length at the largest number of items that would be practical to handle in a one-day visit to each farm. That should make the most effective use of time and money.

які не виступають. Тоді всі види дій виступають як форми самостійної діяльності. Коли ж виступають певні види дій, то всі інші види дій виступають як форми самостійної діяльності. Тоді всі види дій виступають як форми самостійної діяльності.

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TABLE 3

LOCATION OF THE CONSERVATION SIGNIFICANT  
ITEMS IN THE CARD PUNCHING OUTLINES

Item	Card	Column
Attitude toward conservation	1	32
Attitude toward tree planting	1	64
Contour farming	2	69
Contour furrows	1	58
Cover crop	2	66
Cover, vegetation	2	30
Crop	2	63
Drainage, open	2	38
Drainage, stone or tile	2	3.9
Diversion ditch	2	75
Fence removal	1	38
Fence, permanent	1	43
Forest -- see Woodlot	-	--
Grazing intensity	2	31
Grazing method	1	66
Green manure. Legume turned under	2	65
Green manure, summer	2	67
Gully control	2	73
Hedgerow removal	1	38
Irrigation	1	60
Land use changes	2	25
Lime status	2	46
Manuring	2	40
Mulching	2	68
Nitrogen status	2	51
Pasture type	2	32
Phosporus status	2	56
Ponds	1	59
Potassium status	2	61
Rotation	2	62
Streambank control	1	53
Strips	2	70
Strips, correction	2	71
Terrace --see Diversion	-	--
Waterways, grassed	2	72
Windbreaks	2	74
Woodlot. Improvement cutting	2	29
Woodlot. Planting	2	28
Woodlot. Stand	2	27

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TABLE 4

CORRELATION OF 1952 AGRICULTURAL CONSERVATION PROGRAM  
FOR NEW YORK (110) WITH CARD PUNCHING OUTLINES

Practices receiving PMA payments	Card	Column
1 Liming materials	2	46
2. Phosphate	2	56
3. Potash	2	61
4. Rye, annual ryegrass or wheat cover crop	2	66
5. Small grain, millet, or Sudan grass cover crop	2	66
6. Turning under seetclover, red clover, alsike clover of alfalfa	2	65
7. Summer green manure crops	2	67
8. Mulching commercial orchards or vineyards	2	68
9. Mulching strawberries and perennial vegetables	2	68
10. Clearing land suitable for improved permanent pasture	1	38
11. Removing stone walls and hedgerows	1	53
12. Installing tile drainage systems	2	39
13. Constructing permanent open drainage ditches	2	38
14. Constructing diversions	2	75
15. Establishing a contour stripcropping system	2	70
16. Controlling stream banks	1	53
17. Planting forest trees	2	28
18. Improving woodlands	2	29
19. Excluding livestock from woodlots	2	31

All items were prepared first as to subject matter, then revised as to fitness for testing purposes. They were all of the limited response objective type, which minimizes distortions due to spacial heterogeneity, poor definition of practices, and bias.

By further breakdown, a list of mutually exclusive alternatives was set for each item. Both desirable and

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undesirable situations were included among the answers. Flexibility and adaptability of multiple-choice approach allowed handling of all cases. Most conservation significant items (Table 3) were taken care of through the uniform set of coded choices listed below:

0. Practice neither recommended nor present.
1. Not recommended but carried out.
2. Recommended and carried out as recommended.
3. Recommended, carried out changed into an acceptable form.
4. to 7. Recommended, carried out unsatisfactorily modified.
8. Recommended, absent. Carried out but later destroyed.
9. Recommended, never done.

Unfavorable or unsatisfactory choices from the conservation standpoint -- 4 to 9 in most cases -- were termed "foils".

Arrangement of items was by subject matter to facilitate field work. Also, in order to permit mechanical precessing of data, they were organized into four groups, one of each kind of IBM card to be punched.

After assembling the test in a tentative way, a tryout was run during the fall of 1951 on farms representing a wide variety of conditions. Each time gained experience was incorporated.

The first part of the document discusses the general situation in the country, and then proceeds to a detailed description of the various departments and their respective functions. The text is written in a formal, bureaucratic style, and contains many references to specific laws, regulations, and administrative procedures. The author appears to be a high-ranking official, possibly a minister or a senior bureaucrat, who is providing a comprehensive overview of the state of the government's affairs.

In the second part, the author provides a more detailed account of the economic and social conditions. This section includes a critical analysis of the government's economic policies and their impact on the population. The author also discusses the state of the education system and the progress of social reforms. The tone is somewhat more critical here, as the author points out various shortcomings and areas for improvement.

The final part of the document contains the author's conclusions and recommendations. The author suggests several measures that should be taken to address the challenges facing the country, such as strengthening the legal system, improving public administration, and promoting economic growth. The document concludes with a call for national unity and progress.

B. Test forms

Data for items grouped in card 1, were recorded in the blank form to be found on next page. Those for cards 3 and 4 were recorded in the enclosed forms used by Cornell Agricultural Economics Department for land classification surveys. Information was then coded according to the card outlined and registered in special IBM coding sheets, from which, in turn, punching was made.

Card 2 data by individual fields was coded in the field and recorded directly in a coding sheet, with considerable time saving.

• 2000-2001

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author details the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

The third section describes the statistical analysis performed on the collected data. This involved using various statistical tools to identify trends, patterns, and correlations. The results of these analyses are presented in a clear and concise manner, making it easy for the reader to understand the findings.

Finally, the document concludes with a series of recommendations based on the research findings. These recommendations are designed to help improve the efficiency and effectiveness of the processes being studied. The author also provides a list of references for further reading on related topics.

## Cayuga Inlet Soil Conservation Project

## DATA FOR CARD OUTLINE No. 1

- Col. 2-3 Farm number: Project \_\_\_\_\_ Code \_\_\_\_\_  
 Airphoto number \_\_\_\_\_ Date \_\_\_\_\_
- Col. 30 Operator at Project time \_\_\_\_\_  
 Present operator \_\_\_\_\_  
 Same family: Yes \_\_\_ No \_\_\_  
 Owner \_\_\_\_\_
- Col. 4-6 Same farm: Yes \_\_\_\_\_ No \_\_\_\_\_  
 & 24-29 If not, acres sold \_\_\_\_\_ bought \_\_\_\_\_
- Col. 31 Records available:  
 \_\_\_\_\_ Cash account, years \_\_\_\_\_  
 \_\_\_\_\_ Inventory, years \_\_\_\_\_  
 \_\_\_\_\_ Dairy production, years \_\_\_\_\_  
 \_\_\_\_\_ Poultry production, years \_\_\_\_\_
- Col. 32 Do you think conservation pays? Yes \_\_\_ No \_\_\_  
 I don't know \_\_\_\_\_ If yes, why? \_\_\_\_\_  
 \_\_\_\_\_
- Col. 33 Would you have gone further in soil conservation  
 if technical help had continued after District  
 was established? Yes \_\_\_\_\_ No \_\_\_\_\_ No opinion \_\_\_\_\_
- Col. 34 If you had a son, would you like him to farm  
 this farm, \_\_\_\_\_, a nearby farm \_\_\_\_\_, a farm  
 elsewhere \_\_\_\_\_, no farm \_\_\_\_\_. I don't know \_\_\_\_\_.



- Col. 35 What changes have you made in this farm since  
the Project started? None \_\_\_ Shifting to:  
dairy \_\_\_, sheep \_\_\_, beef \_\_\_, poultry \_\_\_,  
grain \_\_\_, vegetables \_\_\_, several shifts \_\_\_.
- Col. 64 Would plant more trees. Yes \_\_\_ No \_\_\_  
No opinion \_\_\_\_\_.
- Col. 36 Manure is stored, \_\_\_, hauled daily to field \_\_\_,  
Reinforced with superphosphate. Yes \_\_\_ No \_\_\_.
- Col. 37 Manure is applied to meadow \_\_\_, grain \_\_\_, row  
crop \_\_\_\_\_.
- Col. 66 Grazing of pastures is: continous \_\_\_\_\_,  
rotational \_\_\_; mowed: Yes \_\_\_ No \_\_\_.
- Col. 67 Water in pasture is : adequate \_\_\_, inadequate \_\_\_.
- Col. 68 Midsummer pasture shortage: Yes \_\_\_, No \_\_\_\_\_.  
There is: emergency crop \_\_\_, aftermath \_\_\_\_\_  
grass silage \_\_\_\_\_.
- Col. 69 Assistance received in woodlots, other than SCS:  
none \_\_\_, in planting \_\_\_\_\_, in management \_\_\_\_\_.
- Col. Conservation practices: Code:
- Col.38-42 Hedgerow removal \_\_\_\_\_ ft.
- Col.43-47 Fence removal \_\_\_\_\_ ft.
- Col.48-52 New fence \_\_\_\_\_ ft.
- Col.53-57 Stream bank control \_\_\_\_\_ ft.
- Col. 58 Contour furrows \_\_\_\_\_





Cayuga Inlet Soil Conservation Project,  
DATA FOR CARD OUTLINE No. 1

Col. 59 Pond \_\_\_\_\_ acres  
Col. 60 Irrigation \_\_\_\_\_ acres

Remarks:

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CARD OUTLINE BY FARMS

CAYUGA INLET SOIL CONSERVATION PROJECT, Card No. 1

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
1	Study	1
2-3	Farm number	(As given in Appendix A)
4-5-6-7	Acres operated	To the nearest unit
8-9-10-11	Total foils	
12-13-14-15	Farm foils	
16-17-18-19-	Field foils	
20	Land economics Class number	
21-22-23	Productivity balance	Nearest hundredth, plus ten
24-25-26	Acres bought since Project started	Nearest unit
27-28-29	Acres sold	Nearest unit
30	Operator changes	2. None 3. New operator but same family 4. New operator, no kin
31	Records available	1. Cash account only 2. Inventory only 3. Dairy production only 4. Poultry production only 5. Cash acc't & Inventory 6. Cash, Invent., Dairy 7. " , " , Poultry 8. " , " " , Dairy 9. None
32	Does conservation pay?	2. Yes 3. No X. No opinion

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THE HISTORY OF THE

ROYAL SOCIETY OF LONDON

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Card 1

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
33	Would you have gone further in SC with more help	(Same Code as for Col. 32)
34	Would like son to farm	2. This farm 3. A nearby farm 4. A farm elsewhere 5. No farm X. Don't know
35	Farming type changes made or being made	1. None 2. Shift to dairy 3. Shift to sheep 4. Shift to beef 5. Shift to poultry 6. Shift to grain 7. Shift to vegetable 8. Shift to other 9. Several shifts
36	Manure handling	1. Reinforced, hauled daily 2. " , stored covered 3. " , " unprotected 4. Not reinforced, hauled daily 5. Not reinforced, stored covered 6. Not reinforced stored unprotected
37	Crop manured	1. Meadow 2. Grain 3. Row crop
38	Hedgerow removal	0. None 1. Not recommended, carried out 2. Recommended, carried out as recommended 3. Recommended, carried out, changed but acceptable 4. Recommended, carried out detrimentally modified 9. Recommended, not carried out

Faint, illegible text covering most of the page, likely bleed-through from the reverse side of the document.

Card 1

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
39-40-41-42	Length of hedgerow in Project	Nearest foot
43	Fence removal	(Same Code as for Col. 38)
44-45-46-47	Length of fence	Nearest foot
48	Permanent fence	(Same Code as for Col.38)
49-50-51-52	Length of permanent fence in Project	Nearest foot
53	Streambank control	(Same Code as for Col.38)
54-55-56-57	Length of streambank	Nearest foot
58	Contour furrows	Same Code as for Col.38)
59	Pond	(Same Code as for Col.38)
60	Irrigation	(Same Code as for Col.38)
61-62-63	Acres irrigated	Nearest unit
64	Attitude towards more tree planting	2. In favor 9. Against X. No opinion
65	Assistance in woodlots, other than Soil Conserv. Service	0. None received 1. Assisted in planting 2. Assisted in management 3. Assisted in both
66	Grazing method in pastures	1. Rotational, mowing, scatter of droppings. 2. Rotational, mowing 3. Rotational 4. Continuous, mowing, scatter 5. Continuous, mowing. 6. Continuous
67	Water in pasture	2. Adequate for livestock 4. Not adequate 9. No water

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

The third section provides a detailed description of the data analysis process. This involves identifying trends, patterns, and anomalies within the dataset. Statistical tools and software were used to facilitate this process, ensuring that the results are both accurate and reliable.

Finally, the document concludes with a summary of the findings and their implications. It highlights the key insights gained from the study and offers recommendations for future research and practice. The author notes that while the current study provides valuable information, there are still several areas that require further investigation.



Card 1

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
68	Midsummer pasture	1. Shortage met by emergency crop 2. No shortage 3. Shortage met by after- math 4. Shortage met by grass silage 5. 6. 9. Shortage, nothing done about it
69	Type of road	1. Hard 2. Gravel 3. Dirt
70	Years lived at this residence	1. Born here 2. 0-2        years 3. 3-5        " 4. 6-10       " 5. 11-20     " 6. Over 20   "
71	Last previous residence	1. Urban 10,000 or more 2. Urban under 10,000 3. Open country
72 to 79	Blank	
80	Card number	1



CARD OUTLINE BY FIELDS

CAYUGA INLET SOIL CONSERVATION PROJECT, Card No. 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
1	Study number	1
2-3	Farm number	(As given in Appendix A)
4-5	Field number	
6	Sector number	
7-8-9-10	Acres	To the nearest tenth
11-12	Total foils per acre	
13	Farm foils per acre	
14-15	Field foils	
16-17	Soil type number	(As given in Appendix E) (99. No type dominant)
18	Slope class	1. A 2. B 3. BB 4. C 5. D
19-20	Soil erosion	00. None. Recent deposition 01. 1 02. 2 03. 3 04. 4 05. 5 06. 6 07. 7 77. 7 08. 8 88. 8 09. 9 99. 9
21	Land capability class number	

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Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
22	Land economics class number	
23	Land use recommended in SCS Project	0. None 1. Forest 2. Pasture, permanent and native 3. Cropland, including rotation pasture 4. Orchard 5. Vineyard 6. Wildlife 7. Farmstead 8. Miscellaneous 9. Idle
24	Present land use	(Same Code as for Column 23).
25	Land use change	2. No change 3. Non-detrimental change 4. Detrimental change



F O R E S T  
Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
26	Type	1. Natural weed-trees 2. Old field hardwoods 3. Northern " 4. Pine " 5. Oak " 6. Black locust " 7. One-species plantation 8. Two-species plantation 9. Three-species plantation
27	Stand	1. Uneven age, brush growth 2. Uneven age, young growth 3. Uneven age, merchantable growth 4. Uneven age, old " 5. Uneven " mixed" 6. Uneven " brush " 7. " " young " 8. " " merchant- able growth 9. Uneven age, old growth
28	Planting	0. None recommended, none found 1. Not recommended, carried out 2. Recommended, carried out as recommended 3. Recommended, carried out changed but acceptable 4. Recommended, carried out, detrimentally modified 9. Recommended, not carried out
29.	Improvement cutting	(Same Code as for Column 28)

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F O R E S T  
C a r d 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
30	Ground bare	1. None or less than 1/4 2. About 1/4 bare 4. About 1/2 bare 6. About 3/4 bare 8. More than 3/4 bare
31	Grazing intensity	0. In forest: little or none 2. In pasture: moderate 4. In forest: moderate 5. " heavy, open park 6. " very heavy, final 8. In pasture: overgrazed 9. " little or none

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud. The text notes that records should be kept for a sufficient period to allow for a thorough audit and to provide a clear history of the organization's financial activities.

2. The second part of the document outlines the specific requirements for record-keeping. It states that all transactions must be recorded in a clear and concise manner, using a standardized format. This includes recording the date, amount, and nature of the transaction, as well as the names of the parties involved. The text also mentions that records should be kept in a secure and accessible location, and that they should be regularly reviewed and updated.

3. The third part of the document discusses the role of the auditor in ensuring the accuracy of the records. It notes that the auditor is responsible for examining the records and verifying that they accurately reflect the organization's financial activities. The text also mentions that the auditor should provide a clear and concise report on the results of the audit, highlighting any areas of concern and providing recommendations for improvement.

4. The fourth part of the document discusses the importance of transparency and accountability in the financial system. It notes that transparency is essential for building trust and confidence in the system, and that accountability is essential for ensuring that the system is operated in a fair and equitable manner. The text also mentions that transparency and accountability are essential for the long-term success of the organization.

P A S T U R E  
Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
32	Type	Grasses:                      Legumes: 0. Less than 1/4              More than 3/4 1. About 1/4                    About 3/4 2. About 1/2                    About 1/2 3. About 3/4                    About 1/4 4. More than 3/4              Less than 1/4 8. Weeds predominant 9. Brush encroachments
33-34	Legume species	0. Not identified 1. Alfalfa 2. Ladino clover 3. Alsike clover 4. Medium red clover 5. Wild white clover 6. Birdsfoot trefoil 7. 8. 9. Others  Code also Col. 34 - same Code as for Col. 33 - when more than one legume species is abundant.
35-36	Grass species	0. Unidentified 1. Bromegrass 2. Timothy 3. Orchard grass 4. Kentucky bluegrass 5. Redtop 6. Reed canary grass 7. Ryegrass 8. 9. Others  Code also Col. 36 - same Code as for Col. 35 - if more than one grass species is abundant.
37	Natural drainage	First digit of profile number, Appendix F.
38	Open drainage	(Same Code as for Col. 28)
39	Artificial drainage tile or stone	(Same Code as for Col. 28)

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F E R T I L I Z E R S  
Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
40-41	Manure applied per acre	Nearest ton
42-43	Lime content of soil profile	Second digit of soil profile number, Appendix F
44-45	Lime applied	Nearest tenth of ton/acre/year
46	Lime status	Same Code as for Col. 28)
47-48	Nitrogen need	Nearest pound per acre
49-50	Nitrogen applied in fertilizers	Nearest pound per acre
51	Nitrogen status	Same Code as for Col. 28)
52-53	Phosphoric acid need	Nearest pound per acre
54-55	Phosphoric acid applied	Nearest pound per acre
56	Phosphoric acid status	(Same Code as for Col. 28)
57-58	Potash need	Nearest pound per acre
59-60	Potash applied	Nearest pound per acre
61	Potash status	(Same Code as for Col. 28)

(1) 1911	(2) 1912	(3) 1913	(4) 1914	(5) 1915	(6) 1916	(7) 1917	(8) 1918	(9) 1919	(10) 1920	(11) 1921	(12) 1922	(13) 1923	(14) 1924	(15) 1925	(16) 1926	(17) 1927	(18) 1928	(19) 1929	(20) 1930	(21) 1931	(22) 1932	(23) 1933	(24) 1934	(25) 1935	(26) 1936	(27) 1937	(28) 1938	(29) 1939	(30) 1940	(31) 1941	(32) 1942	(33) 1943	(34) 1944	(35) 1945	(36) 1946	(37) 1947	(38) 1948	(39) 1949	(40) 1950	(41) 1951	(42) 1952	(43) 1953	(44) 1954	(45) 1955	(46) 1956	(47) 1957	(48) 1958	(49) 1959	(50) 1960	(51) 1961	(52) 1962	(53) 1963	(54) 1964	(55) 1965	(56) 1966	(57) 1967	(58) 1968	(59) 1969	(60) 1970	(61) 1971	(62) 1972	(63) 1973	(64) 1974	(65) 1975	(66) 1976	(67) 1977	(68) 1978	(69) 1979	(70) 1980	(71) 1981	(72) 1982	(73) 1983	(74) 1984	(75) 1985	(76) 1986	(77) 1987	(78) 1988	(79) 1989	(80) 1990	(81) 1991	(82) 1992	(83) 1993	(84) 1994	(85) 1995	(86) 1996	(87) 1997	(88) 1998	(89) 1999	(90) 2000	(91) 2001	(92) 2002	(93) 2003	(94) 2004	(95) 2005	(96) 2006	(97) 2007	(98) 2008	(99) 2009	(100) 2010	(101) 2011	(102) 2012	(103) 2013	(104) 2014	(105) 2015	(106) 2016	(107) 2017	(108) 2018	(109) 2019	(110) 2020	(111) 2021	(112) 2022	(113) 2023	(114) 2024	(115) 2025	(116) 2026	(117) 2027	(118) 2028	(119) 2029	(120) 2030
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C R O P L A N D  
Card 2

<u>Colume</u>	<u>Item</u>	<u>Tabulation Code</u>
62	Rotation type	0. G-H-H-H-H 1. G-H-H-H 2. G-H-H 3. R-G-H-H-H 4. R-G-H-H 5. R-G-H 6. R-R-G-H 7. R-R
63	Crop class	0. No crop. Idle or plowed 1. Meadow. Pasture or hay 2. Grain crop 7. Row crop
64	Crop plant	If meadow (Col. 63, choice 1): 1. Meadow, first year 2. Meadow, second year 3. Meadow, third year 4. Meadow, fourth year etc.  If grain (Col. 63, choice 2): 1. Barley 2. Oats and barley 3. Oats 4. Wheat 5. Rye 6. 7. 8. 9. Other  If row crop (Col. 63, 7): 1. Corn 2. Potatoes 3. Buckwheat 4. Cabbage 5. Beans 6. Peas 7. Tomatoes 8. Other vegetables 9. Others  If crop is unidentified, Code zero

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C R O P L A N D  
Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
65	Legume turned under	(Same Code as for Col. 28)
66	Cover crop	(Same Code as for Col. 28)
67	Summer green manure crop	Same Code as for Col. 28)
68	Mulched crop	(Same Code as for Col. 28)
69	Contour farming	(Same Code as for Col. 28)
70	Strips	<p>0. None recommended, none found  1. Not recommended but present  2. Recommended, present, as recommended  3. Recommended, present, changed either to forest or to pasture    Recommended, present, modified with no detriment into strips.  4....wider  5....straighter  6....wider and straighter    7. Recommended, present, out of contour or other wise detrimentally modified  8. Recommended, absent, carried out but plowed up later  9. Recommended, absent, never started</p>
71	Correction strips	(Same Code as for Col. 28)
72	Grassed waterways	(Same Code as for Col. 28)
73	Gully control	(Same Code as for Col. 28)
75	Windbreaks	(Same Code as for Col. 28)

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C R O P L A N D  
Card 2

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
75	Diversion terrace	0. None recommended, none found 1. Not recommended but present 2. Recommended, present as recommended 3. Recommended, present, modified without detriment 4. Recommended, present, no buffer strip 5. Recommended, present, silted 6. Recommended, present, out of grade 7. Recommended, present, unsatisfactory 8. Recommended, absent, carried out but plowed up later 9. Recommended, never done
76-77-78-79	Length of diversion recommended	Nearest foot
80	Card number	2

1. The first part of the report...

2. The second part of the report...

3. The third part of the report...

4. The fourth part of the report...

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10. The tenth part of the report...

CARD OUTLINE BY FARMS

CATUGA HULET SOIL CONSERVATION PROJECT, Card No. 3

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
1	Study number	1
2-3	Farm number	(As given in Appendix A)
4-5-6-7	Acres operated	To the nearest unit
8-9-10-11	Total foils	
12-13	Elevation of property	Nearest hundred feet
14	Tenure	1. Full owner 2. Part owner 3. Full tenant 4. Life estate
15	Farming status	1. Farm (Full time commercial) 2. Part time & subsistence farm 3. Rural residence 4. Seasonal residence 5. House vacant 6. House gone
16-17-18-19	Acres owned	Nearest unit
20-21-22-23	Acres rented in	Nearest unit
24-25-26-27	Acres rented out	Nearest unit
28-29-30	Total acres of crops	Nearest unit
31-32-33	Acres of idle cropland	" "
34-35-36	Acres of woods not pastured	Nearest unit
37-38-39	Acres of woods pastured	Nearest unit
40-41-42	Acres of permanent pasture	Nearest unit
43-44-45	Acres of season pasture	Nearest unit
46-47	Acres of farmstead and waste	Nearest unit
48-49	Acres of corn for grain	Nearest unit

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1649

BY JOHN BURNET

IN TWO VOLUMES. THE SECOND VOLUME.

LONDON, Printed by J. Sturges, 1734.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1649

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THE HISTORY OF THE

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IN TWO VOLUMES.

THE SECOND VOLUME.

THE HISTORY OF THE REIGN OF KING CHARLES THE FIRST IN THE YEAR 1649 BY JOHN BURNET IN TWO VOLUMES. THE SECOND VOLUME. LONDON, Printed by J. Sturges, 1734.

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## Card 3

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
50	Acres of corn for silage	Nearest unit
52-53	Acres of corn fodder	Nearest unit
54-55-56	Acres of oats	Nearest unit
57-58-59	Acres of oats and barley	Nearest unit
60-61-62	Acres of other mixed grains	Nearest unit
63-64	Acres of buckwheat	Nearest unit
65-66	Acres of wheat	Nearest unit
67-68-69	Acres of alfalfa	Nearest unit
70-71-72	Acres of clover and mixed hay	Nearest unit
73-74-75	Acres of other hay	Nearest unit
76-77	Acres of hay cut on others	Nearest unit
78-79	Acres of hay cut by others	Nearest unit
80	Card number	3

CONTENTS

<p>1. Introduction</p> <p>2. The Role of the State</p> <p>3. The Role of the Market</p> <p>4. The Role of the Family</p> <p>5. The Role of the Church</p> <p>6. The Role of the School</p> <p>7. The Role of the Media</p> <p>8. The Role of the Arts</p> <p>9. The Role of the Sports</p> <p>10. The Role of the Entertainment</p> <p>11. The Role of the Technology</p> <p>12. The Role of the Environment</p> <p>13. The Role of the Climate</p> <p>14. The Role of the Energy</p> <p>15. The Role of the Water</p> <p>16. The Role of the Land</p> <p>17. The Role of the Air</p> <p>18. The Role of the Soil</p> <p>19. The Role of the Ocean</p> <p>20. The Role of the Atmosphere</p> <p>21. The Role of the Biosphere</p> <p>22. The Role of the Geosphere</p> <p>23. The Role of the Lithosphere</p> <p>24. The Role of the Hydrosphere</p> <p>25. The Role of the Atmosphere</p> <p>26. The Role of the Biosphere</p> <p>27. The Role of the Geosphere</p> <p>28. The Role of the Lithosphere</p> <p>29. 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CARD OUTLINE BY FARMS

CAYUGA INLET SOIL CONSERVATION PROJECT, Card No. 4

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
1	Study number	1
2-3	Farm number	(As given in Appendix A)
4-5-6-7	Acres operated	Nearest Unit
8-9-10-11	Total foils	
13-14	Acres of grass silage cut	Nearest unit
15-16	Acres of sudan grass and millet	Nearest unit
17-18	Acres of potatoes	Nearest unit
19-20	Acres of other crops	Nearest unit
21-22-23	Number of cows	
24-25	Number of heifers	
26-27	Number of calves	
28-29	Number of bulls	
29-30	Number of sheep	
31	Number of brood sows	
32-33	Number of other pigs or hogs	
34-35-36-37	Number of hens. estimate average for year	
38-39-40	Pullets raised sexed	
41-42-43	Pullets raised straight run	
44-45-46	Number of broilers	
47-48-49	Other poultry	Nearest hundred

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is arranged in several paragraphs and appears to be a formal document or letter.

## Card 4

<u>Column</u>	<u>Item</u>	<u>Tabulation Code</u>
50-51-52-53	Gallons of maple syrup	
54-55-56	Cords of wood cut for all pruposes	
57-58-59	Timber and lumber cut	Nearest thousand feet
60-61	Number of people in household	
62	Number of tractors	
63	Size of tractors	1. 1 plow 2. 2 plow 3. 3 plow 4. over 3 plow
64	Number of trucks	
65	Size of trucks	1. Under 1 ton 2. 1 to 2 tons 3. Over 2 tons
66	Basement barn	1. Yes 2. No
67	Number of silos	
68-69-70	Number of stantions in barn or barns	
71	Electricity in house	1. Yes 2. No
72	Telephone	1. Yes 2. No
73	Running water	1. Yes 2. No
74	Furnace	1. Yes 2. No
75-76-77	Owner's estimate of value of farm with stock and tools	Nearest thousand dollars
78-79	Owner's estimate of value of real estate	Nearest thousand dollars
80	Card number	4

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### C. Administration of Test

This test was applied to farms cooperating in the Cayuga Inlet Soil Conservation Project, New York. Data was gathered in a uniform way and personally by inspection of the fields and through interviewing the farmers. Details about information recorded may be found below.

#### 1. Card 1

##### Study number, Column 1

A number -- one -- was assigned to this study in order to make possible the utilization of the same IBM cards in an analysis where information from other areas might also be included.

Data was collected in the fall of 1951 and spring of 1952 and corresponds to the crop year ending in the fall of 1951.

##### Farm number, Columns 2 and 3

In the original Project, farms were numbered by the clock system (4), first letters designating a community, followed by a clock direction where 12 o'clock points to the north, a zone number in miles from the community, and a letter for the house. Thus N-4-1-R means: near Newfield, in direction four o'clock, one mile away, house R.

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Farms were coded according to the list included as Appendix A. For convenience, an index by cooperators, and one by airphotos are added as Appendixes B and C.

For a research including a large number of farms, more columns should be left aside under this heading.

Acres operated, Columns 4 to 7

Acres rented in and operated as one unit with main farm are included, but acres owned and rented out are not considered.

More columns should be used in areas where farms are very large.

Total foils, Columns 8 to 11

These represent the product of a conservation deficit rating multiplied by the number of acres. They result from adding farm (Columns 12 to 15) and field (Columns 16 to 19) foils.

Farm foils, Columns 12 to 15

Are the product of farm acres (Columns 4 to 7) times the number of unfavorable conservation items for the farm taken as a whole.

Choices numbered 4 to 9 were considered unfavorable for conservation in the following ten columns: 32, 38, 43, 48, 53, 58, 59, 60, 64, and 66.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the various methods and tools used to collect and analyze data. This includes the use of surveys, interviews, and focus groups to gather qualitative information, as well as the application of statistical techniques to quantitative data.

3. The third part of the document focuses on the interpretation of the collected data. It provides a detailed analysis of the findings, highlighting key trends and patterns that have emerged from the research. This section also discusses the implications of these findings for the organization's strategy and decision-making processes.

4. The final part of the document concludes with a summary of the key findings and a set of recommendations for future research and action. It stresses the need for ongoing monitoring and evaluation to ensure that the organization remains responsive to changing circumstances and continues to improve its performance over time.



Field foils, Columns 16 to 19

Represent unfavorable conservation situations in significant items, when fields were considered individually.

They are the sum of products of fielded acres (Card 2, Columns 7-10) times field foils (Card 2, Columns 14-15).

Land Class, Column 20

Economic class number was recorded as read from map for Tompkins County. (71)

Productivity balance, Columns 21 to 23

Even though it was not intended to calculate productivity balances as part of this study, it is realized that this might be advisable later on or convenient in similar studies. Space left will allow easy subsequent punching of productivity balance data if so desired.

Calculations may be made using blank included as Appendix D, which is an adaptation for New York State of the procedure devised at Ohio Experiment Station (92), c.f. (10). In order to handle negative values, cards may be either double-punched in position "y" or single-punched adding ten units to every value.

Changes in acreage, Columns 24 to 29

Acres bought and acres sold since the Project was established have usually not interfered with information

very faint, illegible text covering the majority of the page, likely bleed-through from the reverse side or a very low-quality scan. The text appears to be organized into several paragraphs, but the individual words and sentences are not discernible.

recorded in Cards 1 and 2, but they did prevent analysis of business data (Cards 3 and 4) by confounding areas inside and outside the original Project.

Records available, Column 31

Intends to locate forms suitable for further study, including years for which data is available.

Farmer's opinions, Columns 32, 33, 34, 64

Questions relative to his attitude towards conservation were worded as follows: Do you think conservation practices pay? Do you have a specific fact in mind?

Column 34 aims at finding which is the attitude of the farmer to his community.

## 2. Card 2

Study number and farm number., Columns 1 to 3

Correspond to identical columns in Card 1 already considered.

Field numbers, Columns 4 and 5

Fields numbers are those shown on revised land use plans of the original project.

Sector number, Column 6

When an area marked as a single field on the original project plans appeared to be managed in more than one way, it was subdivided into as many sectors as were necessary to properly describe the field.

The first part of the document discusses the importance of maintaining accurate records of all transactions and the role of the auditor in this process.

The second part of the document discusses the various methods used to audit financial statements, including the use of sampling and the importance of the auditor's independence.

The third part of the document discusses the various types of audits, including the audit of financial statements, the audit of internal controls, and the audit of compliance with laws and regulations.

The fourth part of the document discusses the various types of audit reports, including the audit report on financial statements, the audit report on internal controls, and the audit report on compliance with laws and regulations.

The fifth part of the document discusses the various types of audit procedures, including the audit of cash, the audit of accounts receivable, and the audit of accounts payable.

The sixth part of the document discusses the various types of audit evidence, including the audit of physical evidence, the audit of documentary evidence, and the audit of oral evidence.

The seventh part of the document discusses the various types of audit conclusions, including the audit of the overall financial position, the audit of the internal control system, and the audit of compliance with laws and regulations.

The eighth part of the document discusses the various types of audit findings, including the audit of errors, the audit of irregularities, and the audit of non-compliance with laws and regulations.

The ninth part of the document discusses the various types of audit recommendations, including the audit of corrective actions, the audit of internal control improvements, and the audit of compliance with laws and regulations.

Acres, Columns 7 to 10

Acreage was recorded to the nearest tenth of an acre because of the small areas found, especially in stripcropped land, where each strip was treated as an independent field in the original project.

Total foils per acre, Columns 11 and 12

They result from adding columns 13 and 14-15.

Farm foils per acre, Column 13

They are the sum of foils in the following ten columns of Card 1: 32, 38, 43, 48, 53, 58, 59, 60, 64, and 66.

Field foils per acre, Columns 14 and 15

They are the sum of foils in the following 27 columns of Card 2: 25, 27, 28, 29, 30, 31, 32, 38, 39, 40, 46, 51, 56, 61, 62, 63, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75,

Soil type number, Columns 16 and 17

Type numbers refer to those in use at the establishment of the Cayuga Inlet Project and are given in Appendix E. The Tompkins County District has since adopted a new numbering; its basis and correlation to the old notation are included as Appendix F.

Slope class, Column 18

Percent of slope for the various classes was taken as originally mapped; namely:

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented, including the date, amount, and purpose of the transaction. This ensures transparency and allows for easy auditing of the accounts.

Furthermore, it is advised to review the records regularly to identify any discrepancies or errors. Promptly addressing these issues helps in maintaining the integrity of the financial data. The document also mentions the use of standardized formats and codes to facilitate the recording and reporting of transactions.

In addition, the text highlights the significance of keeping supporting documents, such as receipts and invoices, organized and accessible. These documents serve as evidence for the recorded transactions and are essential for tax purposes and financial audits.

The document concludes by stating that a well-maintained record system is not only a legal requirement but also a key to successful financial management. It encourages individuals and businesses to adopt a disciplined approach to record-keeping to ensure the accuracy and reliability of their financial statements.

On well drained and moderately well drained till and outwash soils

- A 0 to 5%
- B 5 to 15%
- BB 15 to 25%
- C 25 to 35%
- D 35% and over

On poorly and imperfectly drained till and all lacustrine

- A 0 to 2%
- B 2 to 8%
- BB 8 to 15%
- C 15 to 30%
- D 30% and over

They correspond to the groupings included in the soil legend below (58).

#### SOIL LEGEND

Upland -- non-calcareous till, well drained

- 1 Lordstown stony loam and silt loam
- 7 Wooster and Bath
- 27 Wooster stony silt loam ( a poorer soil, than other members of the Wooster series)

Upland -- non-calcareous till, imperfectly drained

- 8 Canfield Although these soils are imperfectly drained, the mottling or hard pan occurs below 24 inches and they take the same slope groups as do the well drained till soils.
- 28 Mardin

Upland -- non-calcareous till, poorly drained.

- 2 Volusia stony silt loam
- 63 Volusia stony silt loam, deep phase
- 23 Fremont
- 43 Fremont, deep phase
- 34 Allis stony silt loam (if desirable to separate from Volusia)

(In the deep phases of the above soils the mottling or hard pan occurs between 10 and 24 inches from the surface)

- 4 Chippewa
- 11 Hornell

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Upland - slightly calcareous till, well drained

17 Alkaline subsoil Wooster

Upland - slightly calcareous till, imperfectly drained

18 Langford - although this soil is imperfectly drained, the mottling or hard pan occurs below 24 inches and it takes the same slope group as the well drained till soil.

Upland - slightly calcareous till, poorly drained.

13 Erie

53 Erie, deep phase, mottling between 10 and 24 inches.

Terrace and outwash

12 Chenango fine sand loam

21 Howard fine sand loam

22 Chenango gravelly loam and gravelly silt loam

26 Otisville

36 Groton gravelly loam

24 Braceville

32 Palmyra gravelly silt loam

37 Groton fine sandy loam

31 Howard gravelly loam and gravelly silt loam

Lacustrine

25 Dunkirk silt loam

29 Canadea silt loam

35 Arkport of Dunkirk fine sandy loam

39 Granby

Bottom lands

5 Tioga

6 Eel and Middlebury

9 Muck

14 Holly and Wayland (too poorly drained to be cultivated)

15 Chagrin

16 Small bottom, unclassified as to soil type, but well enough drained to be used for pasture, at least.

19 Well drained muck



## Recent deposition

3 Gravel deposits  
 33 Silt deposits  
 46 Mixed patches

## Gravelly and stony areas

Soil Erosion, Columns 19 and 20

As used ordinarily in erosion surveys (59, 84):

- + Recent deposition
- 1 No apparent erosion
- 2 Slight sheet erosion. Less than 25% topsoil removed
- 3 Moderate to serious sheet erosion 25-75% of topsoil removed
- 4 Severe sheet erosion. Over 75% of topsoil removed
- 5 Very severe sheet erosion. Topsoil and subsoil removed, with erosion of parent material
- 6. Land slips, mapped on areas exposed by slips
- 7 Occasional shallow gullies, 3 gullies or less per acre.
- 8 Frequent shallow gullies, more than 3 gullies per acre.
- 9 Destroyed by gullying. Encircling of gully symbols 7, 8 or 9 shows gullies too deep to be crossed by farm implements. Stabilized erosion is indicated by underlining erosion symbol.

Land use capability class number, Column 21

Numbered as done by the United States Soil Conservation Service (8, 84, 113). Not available in this case.

Land economics class number, Column 22

Recorded as read from map of Tompkins County (71).

Land use, Columns 23 to 25

Recommended use was read from maps in file at

Handwritten text, likely a header or introductory paragraph, starting with "Handwritten text" and "Handwritten text".

Handwritten text, likely a main body of a letter or document, starting with "Handwritten text" and "Handwritten text".

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the Tompkins County Soil Conservation District. These maps were drawn at the scale of one inch to five hundred feet.

For present use mapping, land was classified following the definitions of United States Department of Agriculture, Handbook 18, page 276 (111).

Woodlots, Columns 26 to 31

These items were prepared with the help of Professor Fred E. Winch.

Species were identified using the keys given in Cornell 4-H Club Bulletin 85 (27), classified according to Cornell Extension Bulletins 716 and 722 (28, 29). Stages of growth terms described a large proportion of trees having, at breast height, a diameter of: under 4 inches, was called brush; 4 to 12 inches, was called young; and over 12 inches, was called merchantable.

Pastures, Columns 30 to 36

Species were identified following the keys prepared by Professor H. B. Hartwig for his course on Production of Field Crops, at Cornell University.

Drainage, Column 37

Natural drainage was recorded by means of the first digit of the soil profile number now in use for Tompkins County and listed as Appendix F (93).

1870. The first of these was the "Great  
Flood" of 1870, which was a  
catastrophe for the people of the  
Northwest. It was a result of  
the melting of the glaciers which  
had covered the region since the  
last ice age. The water from the  
glaciers had been held back by  
a dam of ice, and when the dam  
broke, the water rushed down the  
valleys, flooding the lowlands.  
The second of these was the  
"Great Fire" of 1871, which  
destroyed much of the city of  
Chicago. It was a result of a  
fire which started in a warehouse  
and spread to the city. The  
fire was so intense that it  
burned for several days, and  
the city was almost completely  
destroyed. The third of these  
was the "Great Drought" of 1871,  
which was a result of a lack of  
rain. The drought was so severe  
that the crops failed, and the  
people of the Northwest suffered  
greatly. These three disasters  
were the result of natural causes,  
and they were the first of a series  
of disasters which were to befall  
the Northwest in the years to  
come.

Lime content of soil profile, Column 42

Second digit of present soil number, Appendix F, was used to record lime in the profile.

Lime and fertilizers, Columns 42 to 61

An estimate was made for each individual field, based on rotation, crop, soil and recommendations of Cornell extension agronomists (3).

Rotation type, Column 62

In the choices, G stands for a grain crop; H, for hay; R, for a row or intertilled crop.

Columns 65 to 79

These practices are judged according to specifications of the New York Agricultural Conservation Program for 1952 (110).

Card 3 and Card 4

They are essentially the coding outlines in use for land economics surveys, and are self-explanatory.

Productive work units were taken from the most recent revision done by Professor Stanly Waren, which is given below:

## WORK UNITS FOR LIVESTOCK AND CROPS

<u>Livestock</u>	<u>Work units per head</u>
Cows	13
Heifers	2
Bulls	5
Hens	0.16





<u>Livestock</u>	<u>Work units per head</u>
Pullets raised	0.05
Broilers raised	0.01
Brood sows	3
Hogs raised	1
Ewes and rams	0.5
 <u>Crops</u>	 <u>Work units per acre</u>
Hay - 1st cutting	0.7
2nd and 3rd cuttings	0.7
Corn silage	2.5
Corn for grain	1.5
Oats	1
Barney	1
Oats and Barley	1
Wheat	1
Buckwheat	1
 Dry beans	 3
Potatoes	9
Cabbage	9
Peas for canning	2
Tomatoes for canning	12
Apples, commercial	12
Home orchard	3
Fruit not of bearing age	2
 <u>Miscellaneous</u>	
Work off farm, days	1

## 2. Sampling

The original Cayuga Inlet Project included 103 cooperating farms, which constituted a statistical "universe" for the purposes of this work. Data on some of the farms became lost in a fire but all 70 remaining were used.

Date	Description	Debit	Credit
1871	To Balance		100.00
1872	By Cash	50.00	
1873	By Cash	75.00	
1874	By Cash	25.00	
1875	By Cash	100.00	
1876	By Cash	50.00	
1877	By Cash	75.00	
1878	By Cash	25.00	
1879	By Cash	100.00	
1880	By Cash	50.00	
1881	By Cash	75.00	
1882	By Cash	25.00	
1883	By Cash	100.00	
1884	By Cash	50.00	
1885	By Cash	75.00	
1886	By Cash	25.00	
1887	By Cash	100.00	
1888	By Cash	50.00	
1889	By Cash	75.00	
1890	By Cash	25.00	
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1893	By Cash	75.00	
1894	By Cash	25.00	
1895	By Cash	100.00	
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1897	By Cash	75.00	
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1899	By Cash	100.00	
1900	By Cash	50.00	
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1903	By Cash	100.00	
1904	By Cash	50.00	
1905	By Cash	75.00	
1906	By Cash	25.00	
1907	By Cash	100.00	
1908	By Cash	50.00	
1909	By Cash	75.00	
1910	By Cash	25.00	
1911	By Cash	100.00	
1912	By Cash	50.00	

These farms having available data were considered as a representative sample of all farms included in the Project for the following reasons:

- a. A large share of the statistical universe is represented, both in farm numbers and in acreage. Therefore, they are very likely to duplicate the characteristics of the complete group.
- b. Fire destruction of data was at random.
- c. Part of each one of the watershed airphotos is included in the sample.

Except for those cases dealing with a universe, all others will require a representative sample secured by either one of these alternatives: random sampling of individual farms, cluster of farms, purposive or stratified sample (45, 62, 125).

### 3. Processing of Data

Data gathered in the form detailed in previous sections was coded as indicated in the card outlines and registered in IBM coding sheets. These have 80 columns and 40 lines, but there is no limit to the combinations possible (127).

From the sheets, data were transmuted into holes punched on IBM standard cards (20, 128). Cards

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are  $3 \frac{1}{4}$  by  $7 \frac{3}{8}$  inches and of a thickness of 150 cards to one inch.

Punching was done mechanically at a rate that varied from 20 to 100 cards per hour, 80 on the average. Accuracy of punching was checked by means of another machine, the verifier,

Each of the 80 vertical columns in the card is divided into 12 punching positions, including the numerals 0 through 9.

Sorting of the cards was mechanically done as punched holes caused electrical contacts in the various pieces of equipment -- sorter, collator, and tabulator -- the operations proceeding at some 400 cards per minute.

#### 4. Goodness of the Test

It was deemed desirable to ascertain the degree of reliability, validity and discrimination that this conservation status test could afford.

##### Reliability

The extent to which results of the test were verifiable, i.e., its reliability was measured as follows:

1. One conservation significant item was eliminated at random, in order to have an even number.
2. The remaining 36 were split into two groups, taking alternate items.



3. Reliability was calculated by means of the Spearman-Brown formula (2):

$$r_t = \frac{2r_{12}}{1 + r_{12}}$$

where  $r_t$  is reliability coefficient of the complete test  
 $r_{12}$  is correlation between the foils in the two halves  
of the test.

#### Validity

The extent to which the test measures what it is supposed to measure, called its validity, is merely another way of looking at the correlation between conservation and significant items, referred to later as item-analysis.

#### Discrimination

Diagnostic value was judged on an item basis, by means of the expression:

$$D = R \cdot F$$

where

D is discriminating power

R is percent of acres without foil

F is percent of acres showing foil

#### Modifications

Even though reliability and validity are not fixed properties of any test in as much as they vary with the material tested, they can be set at an approximately desired level by using the formulas below (2):

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$$n_r = \frac{r_{nn} (1 - r_{xx})}{r_{xx} (1 - r_{nn})}$$

$$n_v = \frac{1 - r_{xx}}{\frac{r_{xy}^2}{r_{(nx)y}} - r_{xx}}$$

where

$n_r$  = length of test required for a given reliability,  
i.e., number of times by which the test has to be  
lengthened

$n_v$  = length of test required for a given validity

$r_{nn}$  = reliability desired

$r_{(nx)y}$  = validity desired

$r_{xx}$  = reliability of original test

$r_{xy}$  = correlation between criterion (Y) and original test (X).

### 5. Analysis of Practices

In order to analyze individual conservation practices, indexes of adoption and of persistence were coined.

Index of adoption was taken as the ratio of units where the practice was carried out to those where recommended. For most items, it was the sum of units in choices 1 to 8, divided by those from 2 to 9.

Index of persistence was the ratio of units

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retaining the practice in satisfactory conditions to number of units in which the practice was recommended. It usually included choices 2 and 3 in the numerator, and the sum of 2 thru 9 as denominator.

For most practices, an acre was taken as one unit, but for a few one foot was used.

## 6. Analysis of Items

Value of the various items as indicators of conservation status of an area was determined by validity coefficients, i.e., estimates of the item criterion correlation.

Tetrachoric "r" was selected as the most suitable expression for this type of work (40, 79). It was obtained as follows:

1. Cards corresponding to the highest ratings were sorted out.
2. A group of the same acreage having the lowest ratings was also picked.
3. Foils were counted for the items in both groups and arranged in tabular form.
4. Frequencies were converted into percentages of total acreage included in both groups.
5. Tetrachoric " r " was computed from Mosier and McQuitty (79) charts.



6. Significance was determined by comparison with Snedecor's table, entered at degrees of freedom equal to total acres minus two.

### 7. Conservation Ratings

It was mentioned before that unsatisfactory situations from the conservation standpoint were named "foils". If foil numbers are added up on unit acre basis, a rating is thus obtained which directly ranks conservation status. Its calculation may be conveniently represented by the following formula:

$$R = \frac{\sum (FxA)}{A}$$

where:

R, is conservation rating per acre

F, is Number of foils of individual piece

A, is Acreage of individual piece

These ratings are simple and suitable for statistical analyses restricted to one set of data, as is the case here with one Project. But, for comparisons with another group of data, these ratings would require adjustment. Perhaps in most cases it will be enough to correct for number of significant items and, in so doing, arrive at a sort of coefficient, that could be represented as follows:

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$$B = \frac{R}{I}$$

where

B, is a Conservation coefficient

R, is Conservation rating per acre

I, is Number of conservation significant items tested

Obviously, the values of B will fall within the limits 0 and 1.

Sometimes, it will be desirable to eliminate the units involved. Then, a transmutation into common units of standard deviation would be advisable, i.e.,  $\frac{x}{\sigma}$  or  $\frac{x - M}{\sigma}$ , or into a D-score. if negative and decimal values are to be avoided (2).

At present, there is no experimental evidence on which relative weights could be assigned to the items and even less to the choices, but a refinement in that direction is not at all impossible. For the time being weighing by acreages seems to be the only justifiable thing to do. On the other hand, in educational research, both theoretical calculations and empirical data have shown no significant effect when items were weighed for validity.

By mechanical sorting within the group of cards number four, it was possible to select land of specified characteristics, calculate a statistical norm of central tendency, and test the significance of the differences found.

CHAPTER 1

The first part of the book discusses the general theory of functions of a real variable. It begins with the definition of a function and its domain and range. The concept of a limit is introduced, followed by the definition of a continuous function. The chapter then discusses the properties of continuous functions, such as the Intermediate Value Theorem and the Extreme Value Theorem. The concept of a derivative is introduced, followed by the rules for differentiating functions. The chapter then discusses the applications of derivatives, such as finding the maximum and minimum values of a function. The concept of an integral is introduced, followed by the rules for integrating functions. The chapter then discusses the applications of integrals, such as finding the area under a curve and the volume of a solid.

The second part of the book discusses the general theory of functions of a complex variable. It begins with the definition of a function of a complex variable and its domain and range. The concept of a limit is introduced, followed by the definition of a continuous function. The chapter then discusses the properties of continuous functions, such as the Cauchy-Riemann equations and the Cauchy Integral Theorem. The concept of a derivative is introduced, followed by the rules for differentiating functions. The chapter then discusses the applications of derivatives, such as finding the maximum and minimum values of a function. The concept of an integral is introduced, followed by the rules for integrating functions. The chapter then discusses the applications of integrals, such as finding the area under a curve and the volume of a solid.



### 8. Other Correlations

Besides those pertinent relationships considered in previous sections, it is also possible to take advantage of information gathered by this method and analyze it beyond the needs of this research which is merely only of helping to interpret conservation items.

The simplest approach would be to apply a technique identical to the one already described for conservation items. This could be carried one step further by dealing with individual choices within items. The number of correlations to be calculated may be obtained from the following formulas :

$$M = \frac{n^1}{p^1 (n-p)^1}$$

and

$$n^1 = e^{-n} \frac{n^n}{2 \sqrt{\pi n}}, \text{ approximately}$$

where

M, is number of correlations

n, is number of items to be correlated

p is number of items considered at a time

For example, disregarding choices and taking 2 items at a time will require the calculation of some 27,000 correlations.



## 9. Critical Rates

This section defines what values have been taken as critical.

Choices in conservation significant items have been selected so that numbers of 4 or larger represent foils, i.e., unfavorable situations. This holds true for Card 1, Columns 32, 38, 43, 48, 53, 58, 59, 60, 64, and 66; Card 2 columns 25, 28, 29, 30, 31, 38, 39, 46, 51, 56, 61, 62, 63, 65, 66, 67, 68, 69, 70, 72, 73, 74, and 75. Columns 27 and 70, Card 2, show foils only in choices 7 through 9. Column 32, Card 2, shows foils in 0, and 4 through 9. Column 40, Card 2, shows foils only in zero.

Means for the various groups were taken as reference values within the Project.

No absolute figures are available to compare outside of the Project but it was felt that an indication of differential adoption of practices could be gained from the contents of Table 5, calculated on data for United States, cumulative for the period 1936-1950 (108)

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TABLE 5

PERCENT OF PLANNED PRACTICES APPLIED ON  
THE LAND, UNITED STATES, CUMULATIVE 1936 TO DEC. 31, 1950

Practice	Percent
Contour farming, acres	65
Cover cropping, acres	64
Diversions, miles	53
Drainage, acres	60
Irrigation, acres	53
Ponds, number	75
Range and pasture improvement, acres	60
Seeding range and pasture, acres	44
Strip cropping, acres	57
Stubble mulching, acres	81
Terraces, miles	47
Tree planting, acres	49
Woodland management, acres	62

Date	Description
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1930	...
1931	...

III  
MATERIALS

The Cayuga Inlet Soil Conservation Demonstration Project was used as a source of experience while this method was being developed. It provided also a testing ground for the finished tool.

Selection of this area was based on several good reasons listed below.

a) More than decade had elapsed since the Project was established and during all that period there had been no further attempts to foster conservation. In other words, after an initial push in the late 1930's the farmers were left to themselves with no assistance other than that available to all farmers in the Tompkins County District (82, 83, 110).

b) Present District Conservationist, Mr. Rodman Fellows, had been a key man in the original Project and was willing to contribute invaluable information and his experience to this research.

c) Records were available in the District Office, including farm plans and a soil conservation survey done on airphotos at one inch to 500 feet, during 1935-36.

d) The area was of moderate size.

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e) Field work could be easily carried from nearby Ithaca.

1. Description of the Cayuga Inlet Watershed (112)

Location: In New York State, on the southwest corner of Tompkins County, centered about the Newfield-West Danby axis, at approximately  $42^{\circ}20'$  N and  $76^{\circ}35'$  W.

Nearly two-thirds of the watershed fall within the town of Newfield, the remainder, in Danby, except for very small portions in Ithaca and in Tioga County.

Shape: Roughly triangular, one side paralleling New York route 13.

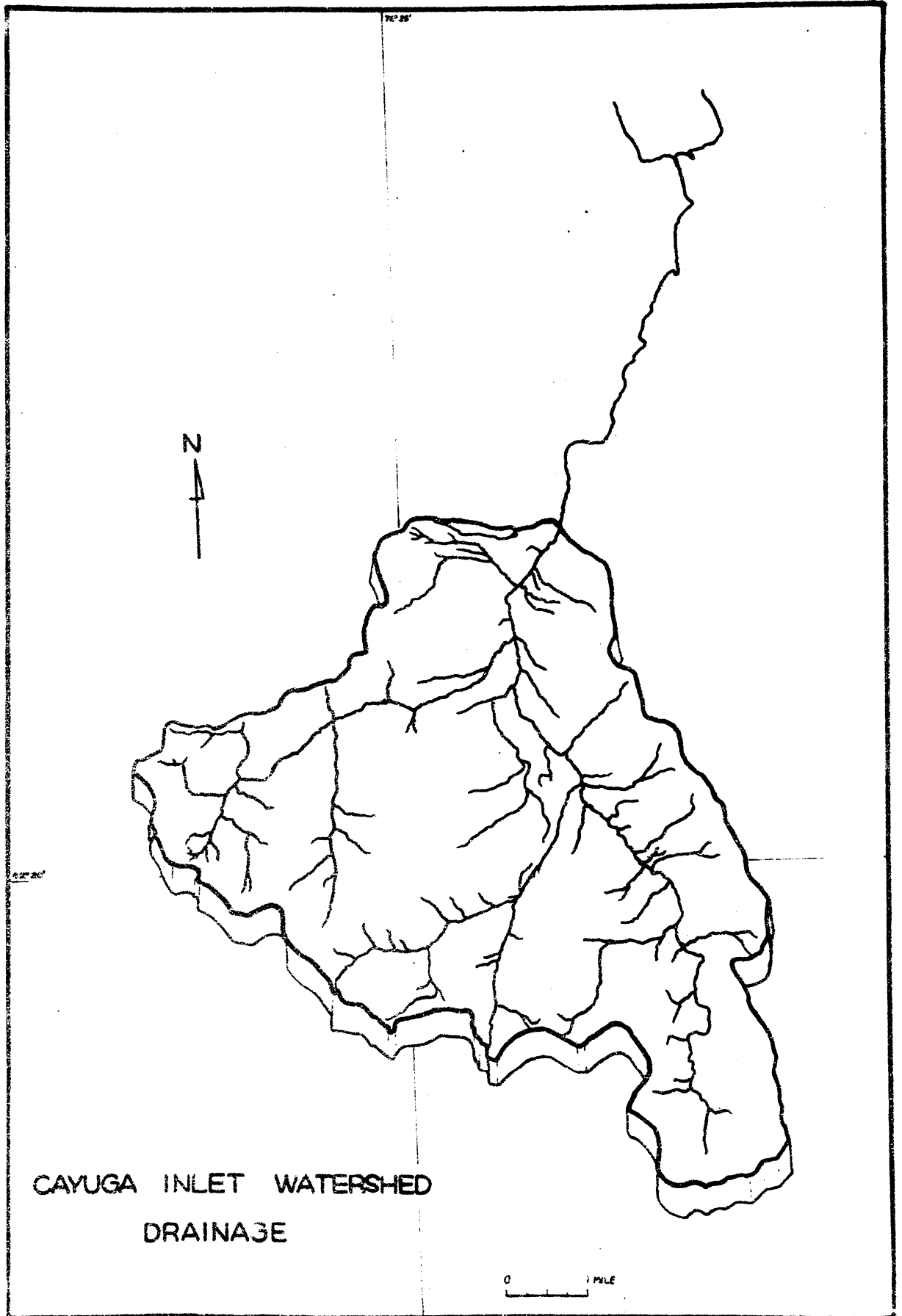
Area 23,639 acres

Drainage: As shown in figure 1, the systems empties into the southern tip of Cayuga Lake. It drains all the area above Enfiled Glen, thru two main streams, one on the east and one on the west side.

Elevation: Ranges from 460 to over 1900 feet above sea level (Mean level of Cayuga Lake, 381 feet) Figure 2 shows 100 ft. contour intervals.



Fig. 1

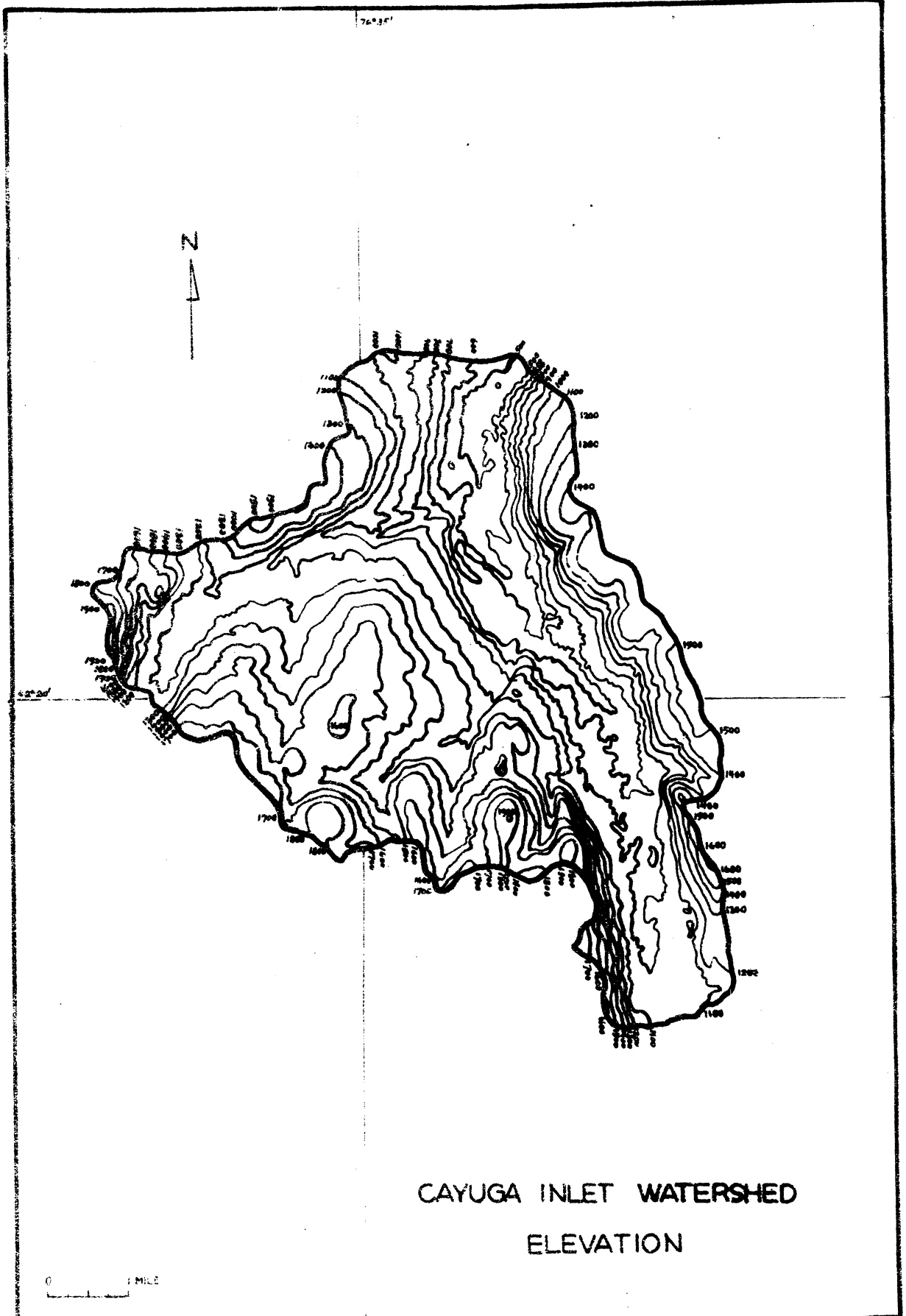


CAYUGA INLET WATERSHED  
DRAINAGE

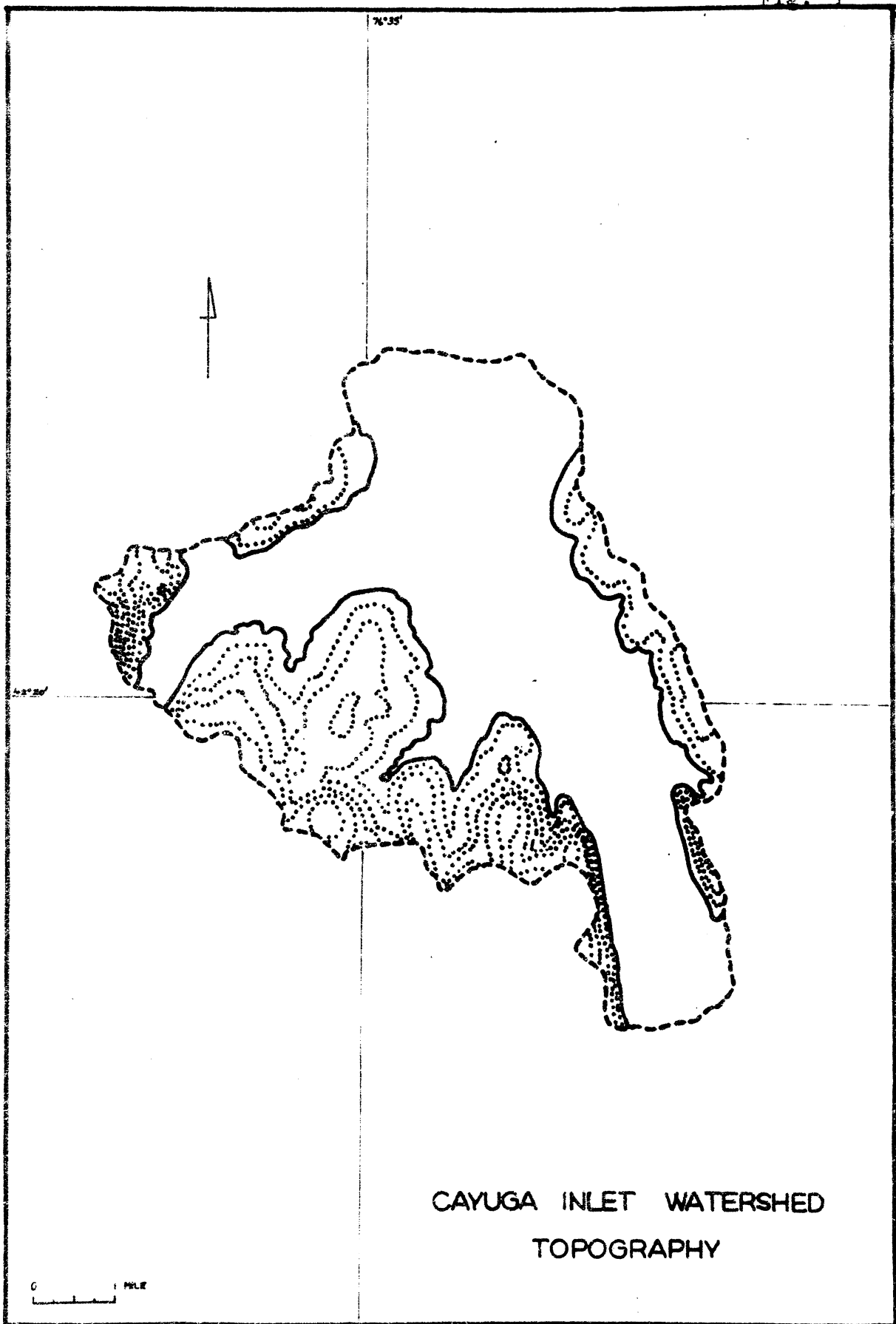
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Fig. 2



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CAYUGA INLET WATERSHED  
TOPOGRAPHY

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The first part of the paper discusses the  
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 It is argued that the study of  
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 is essential to a full  
 understanding of the present.  
 The second part of the paper  
 discusses the importance of the  
 study of the history of the  
 world. It is argued that the  
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 The third part of the paper  
 discusses the importance of the  
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 United States and the world.  
 It is argued that the study of  
 the history of the United States  
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 present.



**Topography and Physiography:** The watershed in part of the Allegheny Plateau, which rises to some 1900 feet above sea level. Only small areas of the plateau remain intact, the bulk showing a markedly rolling topography.

Two main valleys bisect the plateau, as shown in Fig. 3, where the solid line represents the 1300-ft. contour. In addition, there are a number of lateral narrow ravines, descending from the steep upper slopes, through gentler lower sides, and into rolling valley bottom with morainic deposits.

**Climate:** Climate is that of the New York Central Lakes region (77), resembling closer the one of Ithaca.

Observations of 66-86 years show the following mean annual figures:

Temperature	47°F
Precipitation	30-40 in.
Relative humidity	77%
Data for the growing season is found below:	
Length	157 days
Temperature	60-65°F
Precipitation	15-18 in.
Sunshine	57% of possible

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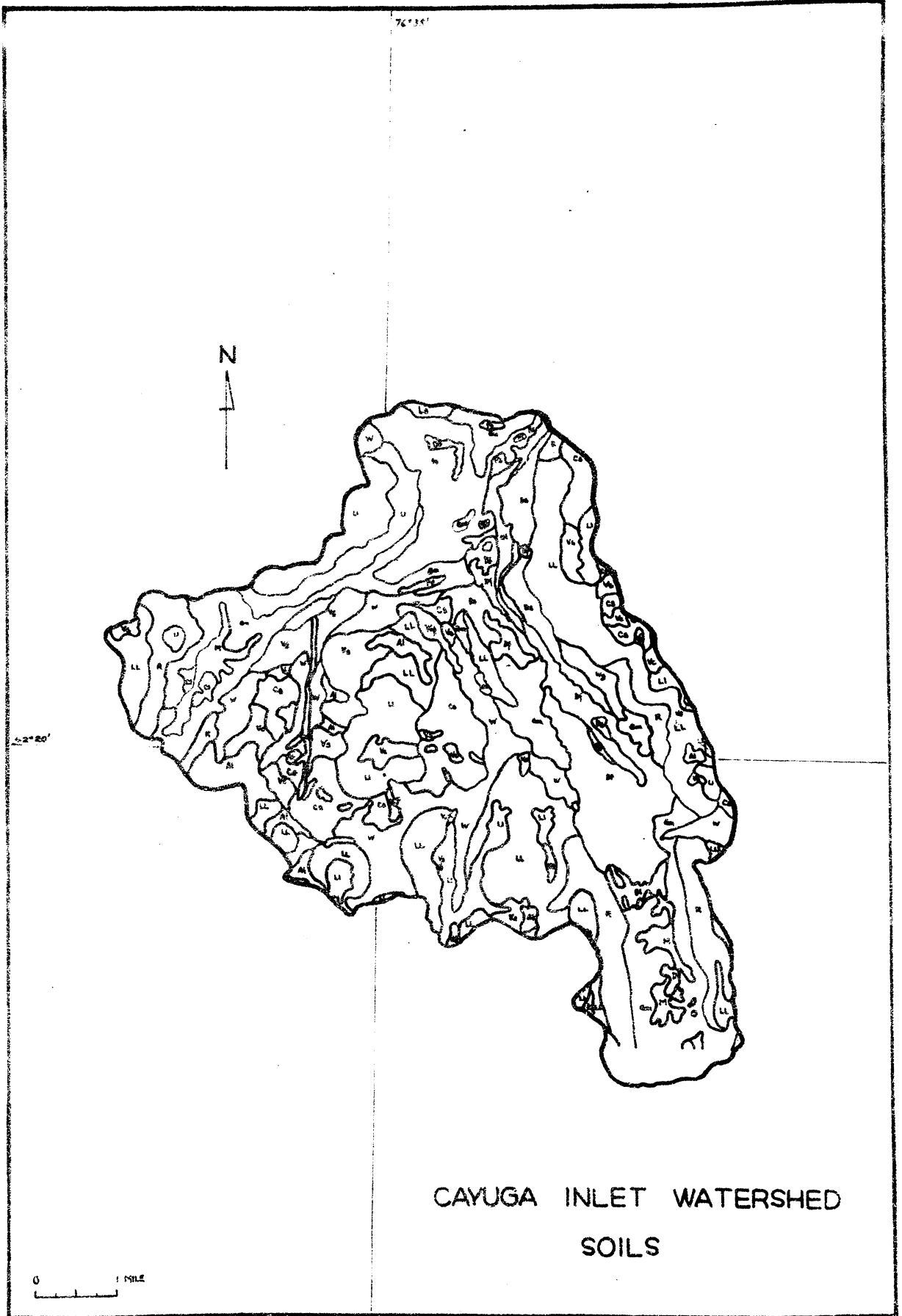
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Fig. 4





**Soils:** Out of the 30 units mapped in the area, only eighteen of them occupied more than 1% of the total acreage. Those having more than 5% are listed below:

Soil type	Percent area
Lordstown stony silt loam	26.1
Langford silt loam	11.8
Palmyra gravelly loam	10.6
Dunkirk silty clay and silt loams	9.7
Wooster gravelly silt loam	7.6
Erie gravelly silt loam	7.1
Fremont gravelly silt loam	5.6

Lordstown is dominant on the hilltops, while Wooster is common at 1600-1200 feet, with Dunkirk and Palmyra further down (58). About 70% of the area has soils derived from glacial till, 14% are lacustrine, 11% outwash, and 5% alluvial.

Nearly one-fourth of the land is poorly drained and is imperfect on another one-third, c.f. Appendix E and figure 4.

Productivity is generally low, except for the valley bottoms.

**Slopes:** B slope dominates, including some 40% of the area. BB, comes second with 24%, the remainder being about equally distributed with 12% for each A, C, and D slopes.

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**Erosion:** When the conservation survey was done in the mid 1930's, erosion was not found serious on the steep forested upper valley walls, but on the irregular slopes farther down, moderate to severe sheet erosion occurred. Severe sheet erosion was found at the top of the plateau as well as near the bottom of the valley. Occasional gullies appeared on the upland (59, 67).

A breakdown of the area follows:

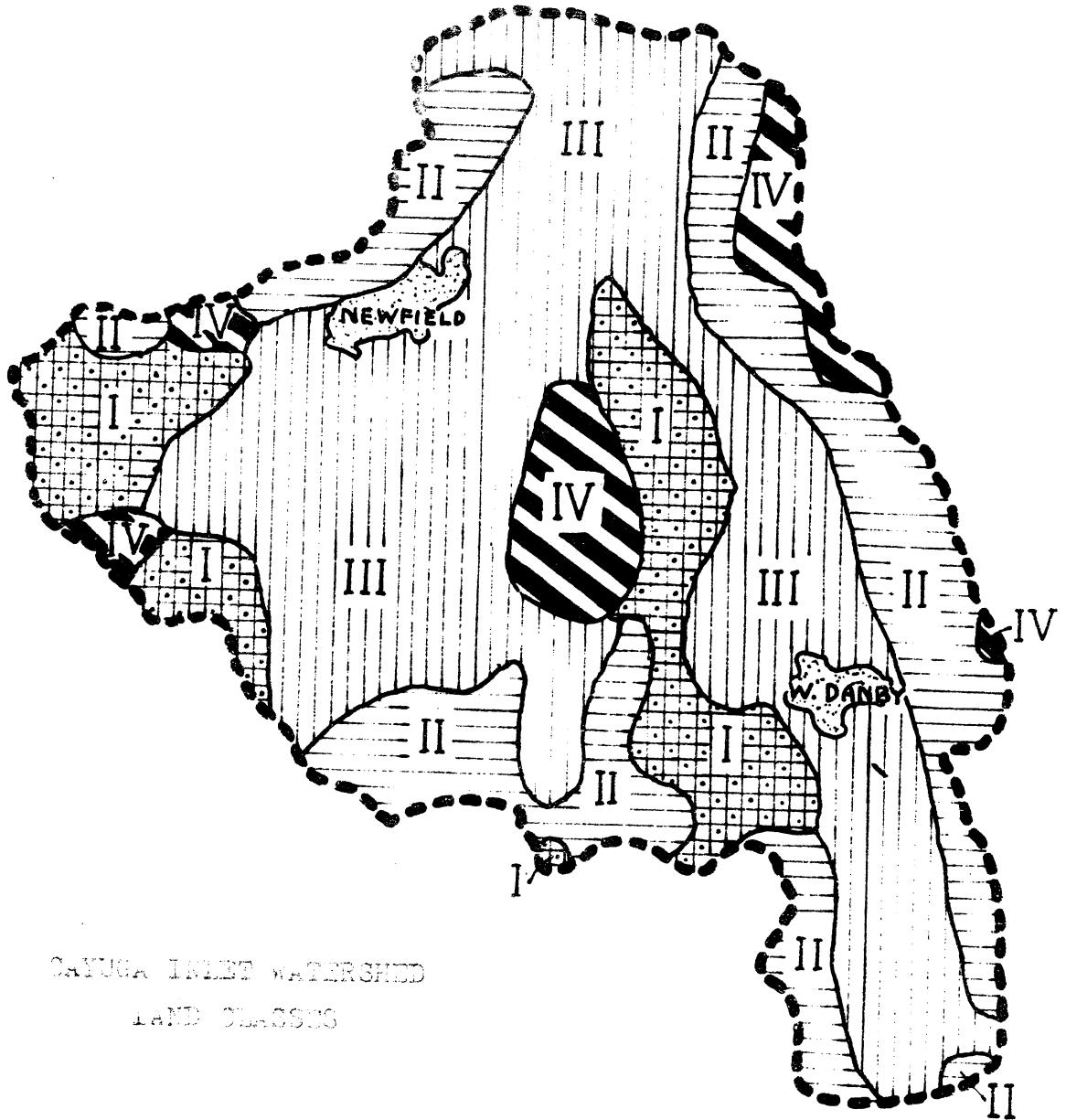
Erosion Class	Percent
1. No apparent erosion	13.6
2. Slight sheet erosion	22.1
3 Moderate sheet erosion	51.8
4. Severe sheet erosion	9.8
Land cut by gullies	1.9

Water is the only erosive agent and causes the greatest damage in the summer.

**Land use:** At the time of the survey, the water shed was about equally divided among woodlots, cropland, and pastures, with 17% idel and 2% urban lands interspersed. Half of the cultivated area was harvested for hay. The most important cash crops were beans and buckwheat, occupying 4% of the land. Spring grains and rye covered 5%.

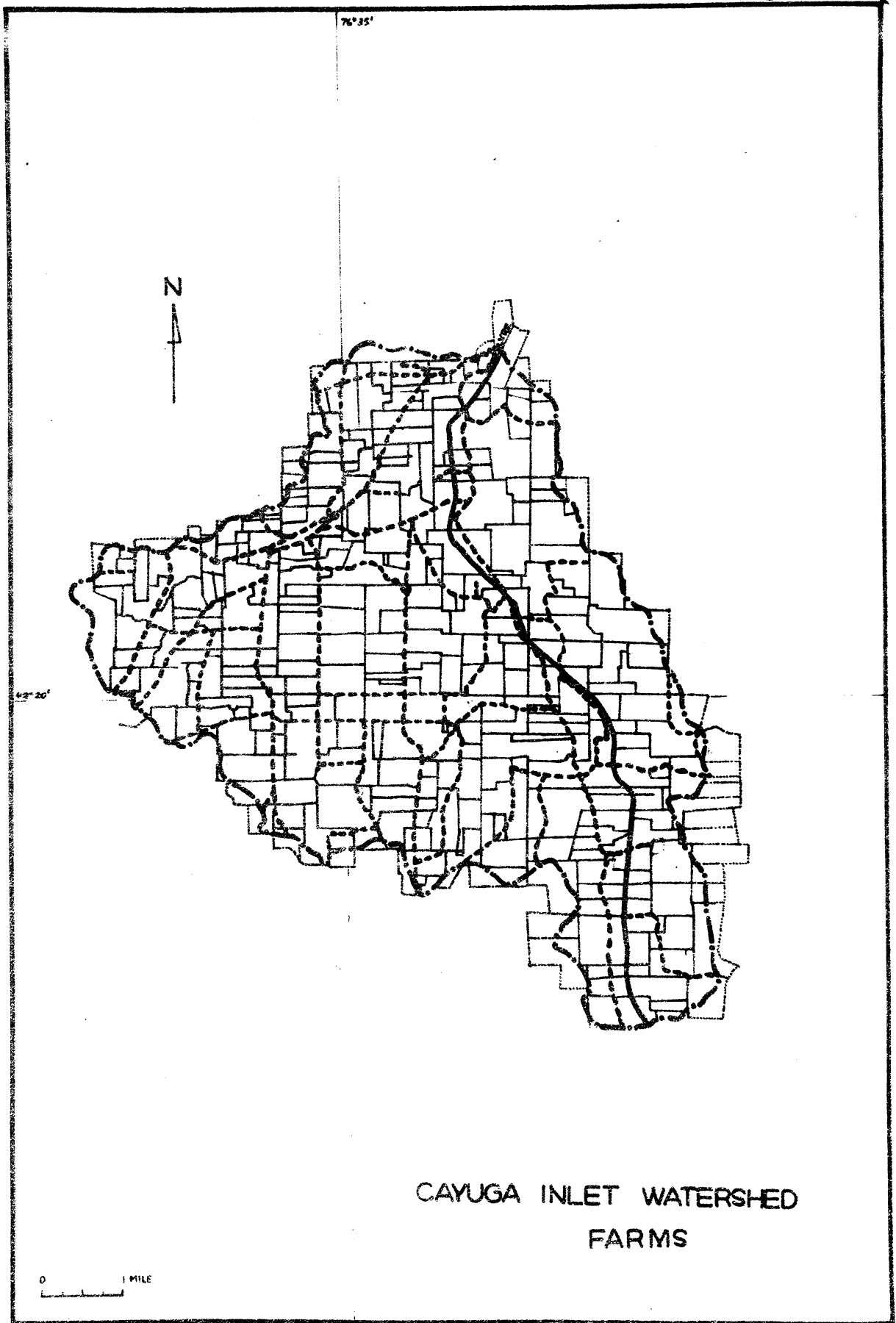






CAYUGA INLET WATERSHED  
LAND CLASSING





CAYUGA INLET WATERSHED  
FARMS

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A four-year rotation of corn, oats and 2 years of hay was prevalent .

Farming system: Dairy farming was the main enterprise, with poultry gaining importance through the years (56, 70, 71, 72, 74, 116, 119).

Land classes: As shown in figure 5, slightly more than one-half of the watershed lays in economic land class III, 28% in II, 15% in I, and less than 6% in IV (71).

Farms Included in the watershed were 263 farms, ranging in size from 5 to 450 acres, the median being 94. (See figure 6).

A little over 10% of the farms were operated by tenants, mostly on a 50-50 basis.

## 2. Soil Conservation Service Demonstration Project, N.Y.-2

Based on a survey of the watershed plus data from several sources, such as the Cohocton River Demonstration Project and the Arnot Experiment Station, the Cayuga Inlet Demonstration Project N.Y.-2, was set along the following main objectives (112).

1. Include in cooperation contracts one-half of the watershed - 12,000 acres - by June 1, 1937.
2. Put 5,000 acres -- 20% of Project area -- under contour tillage. Out of these, strip crop 2,000.



3. Remove from cultivation 2000 acres of slopes over 35% slope and plant them to trees.
4. Retire from cultivation and put in permanent sod, 1000 acres of land on poorly drained soils with slopes over 15% plus all above 25% slopes on other soils.

Since the establishment of the Tompkins County District in 1940, the policy has been of no interference with the area as explained earlier.

• **Стороны договора:** государство и гражданин.  
• **Предмет договора:** предоставление государством гражданину определенных прав и обязанностей.  
• **Содержание договора:** перечень прав и обязанностей, которые государство берет на себя по отношению к гражданину и наоборот.  
• **Стороны договора:** государство и гражданин.  
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• **Содержание договора:** перечень прав и обязанностей, которые государство берет на себя по отношению к гражданину и наоборот.



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TABLE 6  
CORRELATION OF PROJECT AND WATERSHED CHARACTERISTICS,  
CAYUGA INLET VALLEY

	Percent of area*	
	Project	Watershed
Soils:		
Lordstown	21.2	26.1
Langford	8.4	11.8
Palmyra	0.4	10.6
Dunkirk	5.5	9.7
Wooster	10.4	7.6
Erie	19.2	7.1
Fremont	10.4	5.6
Slope Class:		
A	5.8	11.8
B	41.8	39.7
BB	27.2	23.9
C	14.5	12.6
D	10.6	12.0
Sheet Erosion:		
None	9.5	13.6
Slight	19.3	22.1
Moderate	63.0	51.8
Severe	8.9	9.8
Land Class:		
I	4.2	14.7
II	28.6	27.7
III	51.2	50.9
IV	16.0	5.7

\*Based on 6,478.3 acres for the Project, and 22,316  
for the watershed

$r = 0.86$ , significant at 1% point.



TABLE 7

## GOODNESS OF THIS SOIL CONSERVATION STATUS TEST

Average diagnostic value	1924	
Correlation coefficient between two halves of test		0.82
Spearman-Brown reliability coefficient		0.9
Validity coefficients of selected individual items:		
Conservation pays		0.01
Conservation doesn't pay		0.99#
Recommended hedgerow removal carried out		0.30
Recommended fence removal carried out		0.15
Recommended new fence constructed		0.30
Stream bank control		0.82
Against more tree planting		-0.88
Grazing methods		0.99#
No change in land use		-0.18
Detrimental change in land use		-0.62
Woodlots of even age stand and young growth		-0.96
Recommended improvement cutting of woodlot carried out		0.55
Vegetation cover of 75-100%		-0.80
Little or no grazing in forest		0.99#
Moderate grazing in pastures		-0.47
Botanical composition of grassland		-0.90
Artificial drainage		0.34
Lime status of soil		0.01
Crop		-0.01
Strip cropping		0.30
Grassed waterways		-0.99#

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# Low discriminating power



TABLE 8

ADOPTION AND PERSISTANCE OF RECOMMENDED PRACTICES  
CAYUGA INLET SOIL CONSERVATION PROJECT

	Adoption	Persistence
Land use	0.88	----
Tree planting	1.48	0.40
Improvement cutting	1.00	0.77
Grazing	0.65	0.29
Open drainage	1.00	0.00
Tile drainage	1.10	0.67
Strip cropping	1.00	0.61
Correction strips	1.00	0.70
Grassed waterways	1.00	0.77
Gully control	1.00	1.00
Diversion ditches	1.00	0.91
Stream bank control	1.00	0.97
Hedgerow removal	1.00	0.98
Fence removal	1.00	0.90
New Fence	1.00	0.97

Year	Population	Area	Population Density
1901	1,000	100	10
1911	1,500	100	15
1921	2,000	100	20
1931	2,500	100	25
1941	3,000	100	30
1951	3,500	100	35
1961	4,000	100	40
1971	4,500	100	45
1981	5,000	100	50
1991	5,500	100	55
2001	6,000	100	60
2011	6,500	100	65
2021	7,000	100	70



TABLE 9

TETRACHORIC CORRELATION COEFFICIENTS OF SLOPE CLASS TO  
CONSERVATION RATINGS

	r
A	0.73**
B	0.26
BB	-0.26
C	-0.13
D	-0.60

---

TABLE 10

TETRACHORIC CORRELATION COEFFICIENTS OF SOIL EROSION TO  
CONSERVATION RATING

	r
No apparent erosion	-0.01
Slight sheet erosion	0.03
Moderate to serious sheet erosion	0.00
Severe sheet erosion	0.03
All kinds of sheet erosion	0.01
Occasional shallow gullies	-0.60
Frequent shallow gullies	0.76**

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\*\* Significant at 1% point

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It covers both qualitative and quantitative research approaches.

3. The third part of the document focuses on the interpretation and presentation of results. It provides guidelines on how to effectively communicate findings to stakeholders.

4. The fourth part of the document discusses the ethical considerations and standards that must be followed throughout the research process.

5. The fifth part of the document provides a summary of the key points and conclusions drawn from the study.

6. The sixth part of the document includes a detailed appendix of data and supporting information.

7. The seventh part of the document contains a list of references and sources used in the research.

8. The eighth part of the document provides a glossary of key terms and definitions.

9. The ninth part of the document includes a list of figures and tables.

10. The tenth part of the document contains a list of abbreviations and acronyms.

TABLE 11

TETRACHORIC CORRELATION COEFFICIENTS OF SOIL TYPES TO  
CONSERVATION RATING  
CAYUGA INLET SOIL CONSERVATION PROJECT

	r
Lordstown	-0.32
Gravel deposits	0.65
Chippewa	0.90**
Wooster	0.09
Muck	0.99#
Erie	0.61
Holly, Wayland and Maumee	0.97**
Small bottoms	-0.99#
Alklaine subsoil Wooster	-0.01
Langford	-0.47**
Howard	0.99#
Fremont	0.26
Bracoville	0.99#
Dunkirk	-0.99**
Mardin	-0.99#
Canaeada	0.01
Howard gravelly loam	0.26
Arkport	-0.99#
Groton gravelly loam	0.14
Groton	0.99#
Deep Lordstown	-0.40
Fremont, deep phase	0.00
Erie, deep phase	-0.14
Mixed, no type predominant	-0.38

---

\*\* Significant at 1%

# One of the rating graphs showed zero acreage



TABLE 12  
TETRACHORIC CORRELATION COEFFICIENTS OF SOIL DRAINAGE  
AND CONSERVATION RATING

	r
<u>Natural drainage:</u>	
Well drained	-0.18
Imperfectly drained	-0.30
Poorly drained, impervious layer deep below	0.97**
Poorly drained, impervious layer near surface	0.47
Very poorly drained	0.90**
<u>Tile drainage:</u>	
Satisfactory	0.34
Unsatisfactory	-0.55

---

TABLE 13  
TETRACHORIC CORRELATION COEFFICIENTS OF LIME CONTENT  
IN SOIL PROFILE AND CONSERVATION RATING

	r
Very low	0.00
Low	0.06
Medium	0.01
High	-0.33

---

\*\* Significant at 1% point



TABLE 14  
TETRACHORIC CORRELATION COEFFICIENTS OF LAND USE AND  
CONSERVATION RATING

	Recommended	Present
	r	r
Forest	-0.09	-0.30
Pasture	0.14	-0.07
Cropland	-0.09	-0.40
Orchard	-0.30	0.59
Wildlife	0.45	0.45
Farmstead	0.30	0.24
Miscellaneous	0.59	-0.03
Idle	0.96	-0.45
None	-0.99 <sup>#</sup>	-0.99 <sup>#</sup>

---

TABLE 15  
TETRACHORIC CORRELATION COEFFICIENTS OF CHANGES IN  
LAND USE AND CONSERVATION RATING

	r
No change	-0.18
Harmless change	-0.50
Harmful change	-0.62

---

<sup>#</sup> one of the rating graphs showed zero acreage

Year	Population	Area
1870	1,000,000	100,000
1880	1,500,000	150,000
1890	2,000,000	200,000
1900	2,500,000	250,000
1910	3,000,000	300,000
1920	3,500,000	350,000
1930	4,000,000	400,000
1940	4,500,000	450,000
1950	5,000,000	500,000
1960	5,500,000	550,000
1970	6,000,000	600,000
1980	6,500,000	650,000
1990	7,000,000	700,000
2000	7,500,000	750,000
2010	8,000,000	800,000
2020	8,500,000	850,000

Year	Population	Area
1870	1,000,000	100,000
1880	1,500,000	150,000
1890	2,000,000	200,000
1900	2,500,000	250,000
1910	3,000,000	300,000
1920	3,500,000	350,000
1930	4,000,000	400,000
1940	4,500,000	450,000
1950	5,000,000	500,000
1960	5,500,000	550,000
1970	6,000,000	600,000
1980	6,500,000	650,000
1990	7,000,000	700,000
2000	7,500,000	750,000
2010	8,000,000	800,000
2020	8,500,000	850,000

Source: U.S. Census Bureau, Historical Statistics of the United States, Series 191-192, 1997.



TABLE 16

TETRACHORIC CORRELATION COEFFICIENTS OF LAND CLASS  
TO CONSERVATION RATING

	r
Land Class II	0.14
Land Class III	-0.44
Land Class IV	0.78**

---

TABLE 17

TETRACHORIC CORRELATION COEFFICIENTS OF PRODUCTIVE-  
MAN-WORK UNITS TO CONSERVATION RATING

	r
PMWU in crops	-0.18
PMWU in livestock	-0.59
PMWU in crops and livestock	-0.47
PMWU per man	-0.60

---

TABLE 18

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN CHANGES  
IN FARMING TYPE AND CONSERVATION RATING

No change	-0.85**
Shift towards poultry	0.85**
Other shifts	0.45

---

\*\* Significant at 1% point



TABLE 19

TETRACHORIC CORRELATION COEFFICIENTS OF WOODLOT ITEMS  
AND CONSERVATION RATING

	r
<u>Type:</u>	
Natural wood-tree	-0.99#
Northern hardwoods	-0.96**
One-species plantation	0.99#
Three-species plantation	0.99#
<u>Stand:</u>	
Uneven age, young growth	-0.45
Uneven age, merchantable growth	-0.99#
Uneven age, mixed growth	-0.03
Even age, young growth	-0.96**
<u>Planting:</u>	
As recommended	0.99#
Satisfactorily modified	-0.99#
Unsatisfactory	-0.99#
Not recommended but carried out	0.99#
<u>Improvement cutting:</u>	
Satisfactory	0.55
Unsatisfactory	-0.99#

---

\*\* Significant at 1% point

# One of the rating graphs showed zero acreage

1911年12月1日  
北京

先生  
承蒙惠寄  
新著  
一册  
已收到  
甚感  
厚意  
此致  
敬礼

1911年12月1日  
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先生  
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厚意  
此致  
敬礼

TABLE 20

TETRACHORIC CORRELATION COEFFICIENTS OF GROUND BARE  
AND CONSERVATION RATING

None or less than one-fourth	-0.80
About one-fourth	0.30
About three-fourth	-0.99

---

TABLE 21

TETRACHORIC CORRELATION COEFFICIENTS OF GRAZING  
AND CONSERVATION RATINGForest:

Little or no grazing	0.38
Moderate grazing	-0.99 <sup>#</sup>

Pasture:

Little or no grazing	-0.96**
Moderate grazing	-0.47**

---

\*\* Significant at 1% point

<sup>#</sup> One of the rating graphs showed zero acreage

1. 凡在本會服務之職員，其薪金及福利，均依照本會之規定辦理。
   
 2. 本會之職員，其任期為一年，自一月一日起至十二月三十一日止。
   
 3. 本會之職員，其任期屆滿前，不得辭職。
   
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TABLE 22

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN GRASSLAND  
ITEMS AND CONSERVATION RATING

		r
Grass-legume ratio:		
Less than	1:3	-0.55
About	1:3	-0.83**
About	1:1	-0.86**
About	3:1	-0.90**
More than	3:1	-0.62
Weeds predominant		-0.99#
Brush encroachments		0.97**
Presence of:	Alfalfa	-0.45
	Red Clover	-0.45**
	Timothy	-0.55
	Kentucky Bluegrass	-0.39
Adequate water in pasture		-0.76**
No shortage in midsummer pasture		-0.59**

---

\*\* Significant at 1% point

# One of the rating graphs showed zero acreage

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TABLE 23

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN CROP CLASS  
AND CONSERVATION RATING

Meadow	0.30
Grain	0.00
Row crop	-0.93**

---

TABLE 24

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN STRIP  
CROPPING AND CONSERVATION RATINGStrips recommended:

Present as recommended	0.30
Modified without harm:	
Removed from cultivation	0.03
Made wider	-0.82**
Made straighter	0.69**
Made wider and straighter	-0.71**
Modified with damage	-0.72**
Plowed up	-0.76**
Never laid on the land	-0.14
<u>Strips not recommended but present</u>	0.55
<u>Correction strips</u> , as recommended	0.65

---

\*\* Significant at 1% point

1. 凡在本行存款者，均得享受本行所定之利率。  
 2. 存款之利息，按季结算，并于每季末月之十五日以前，通知存款人。  
 3. 存款人得随时向本行支取存款，但须于支取前，向本行通知。  
 4. 存款人得向本行申请，将存款全部或部分，转为定期存款。

5. 存款人得向本行申请，将存款全部或部分，转为活期存款。  
 6. 存款人得向本行申请，将存款全部或部分，转为零存整付存款。  
 7. 存款人得向本行申请，将存款全部或部分，转为整存整付存款。  
 8. 存款人得向本行申请，将存款全部或部分，转为整存零付存款。  
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 10. 存款人得向本行申请，将存款全部或部分，转为存本取息存款。

11. 存款人得向本行申请，将存款全部或部分，转为存本付息零存整付存款。  
 12. 存款人得向本行申请，将存款全部或部分，转为存本取息零存整付存款。

TABLE 25

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN MISCELLANEOUS  
ITEMS AND CONSERVATION RATING

	r
Attitude in favor of conservation	0.01
Attitude in favor of more technical help	0.30
Attitude against tree planting	-0.88**
Unsatisfactory grassed waterways	0.71
Hedgerow removed	0.30
Fence removed	0.15
Fence built	0.30
Stream bank control satisfactory	0.82**
Want son to farm same farm	-0.15
Crop manured	0.15
Way in which manure is handled	0.14

TABLE 26

LAND USE  
CAYUGA INLET SOIL CONSERVATION PROJECT

	Recommended, 1935-40		Present, 1951,52	
	Acres	Percent	Acres	Percent
Pasture	2,498	38.4	2,279	39.6
Cropland	2,164	33.4	1,642	28.6
Forest	1,647	25.2	1,154	20.0
Farmstead	107	1.7	91	1.6
Wildlife	30	0.5	13	0.2
Orchard	26	0.4	8	0.1
Miscellaneous	23	0.4	9	0.2
Idle	2	*	556	9.7
None	2	*	5	*
	<hr/> 6,499	<hr/> 100.0	<hr/> 5,756	<hr/> 100.0

\*\*Significant at 1%point

\* less than 0.1%



TABLE 27  
 LAND CLASS  
 CAYUGA INLET SOIL CONSERVATION PROJECT

	Acres	Percent
Class I	277.2	4.2
Class II	1,849.8	28.6
Class III	3,331.9	51.2
Class IV	1,039.7	16.0
	<u>6,498.6</u>	<u>100.0</u>

---

TABLE 28  
 FARM OPERATOR CHANGES, 1940 to 1952  
 CAYUGA INLET SOIL CONSERVATION PROJECT

Same operator	24
New operator, same family	20
New operator, no kin	20
No operator	<u>2</u>
	<u>66</u>

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TABLE 29

SOIL TYPES, OLD AND NEW CLASSIFICATIONS  
CAYUGA INLET SOIL CONSERVATION PROJECT

|  | Acres          |                | Percent      |              |
|--|----------------|----------------|--------------|--------------|
|  | Old            | New            | Old          | New          |
| Arkport (now Dunkirk)                    | 62.0           | 1.0            | 1.0          | 0.0*         |
| Braceville                               | 9.3            | 9.3            | 0.1          | 0.1          |
| Canaeada                                 | 186.1          | 186.1          | 2.9          | 2.9          |
| Cazenovia                                | 4.9            | 4.9            | *            | *            |
| Chagrin and Genesee                      | 15.6           | 15.6           | 0.2          | 0.2          |
| Chippewa                                 | 76.6           | 76.6           | 1.2          | 1.2          |
| Dunkirk                                  | 356.0          | 418.0          | 5.5          | 6.4          |
| Eel and Middlebury                       | 25.8           | 25.8           | 0.4          | 0.4          |
| Erie                                     | 762            | 762.9          | 11.7         | 11.7         |
| Erie, deep phase (now<br>Langford)       | 485.0          | 0.0            | 7.5          | 0.0          |
| Fremont                                  | 431.4          | 431.4          | 6.6          | 6.6          |
| Gravel deposits                          | 25.3           | 25.3           | 0.4          | 0.4          |
| Granby                                   | 10.5           | 10.5           | 0.2          | 0.2          |
| Groton gravelly loam<br>(now Palmyra)    | 478.2          | 0.0            | 3.5          | 0.0          |
| Groton                                   | 109.9          | 109.9          | 1.7          | 1.7          |
| Fremont, deep phase<br>(now Mardin)      | 241.0          | 0.0            | 3.5          | 0.0          |
| Holly, Mayland and<br>Maumee             | 91.7           | 91.7           | 1.4          | 1.4          |
| Howard                                   | 63.3           | 63.3           | 1.0          | 1.0          |
| Langford                                 | 548.1          | 1,033.1        | 8.4          | 15.9         |
| Lorstown                                 | 1,012.4        | 1,373.5        | 15.5         | 21.1         |
| Lorstown, deep phase                     | 361.1          | 0.0            | 5.6          | 0.0          |
| Mardin                                   | 14.1           | 255.1          | 0.2          | 3.9          |
| Muck                                     | 30.2           | 30.2           | 0.5          | 0.5          |
| Palmyra                                  | 29.7           | 507.9          | 0.5          | 0.5          |
| Small bottoms                            | 24.8           | 24.8           | 0.4          | 0.4          |
| Valois                                   | 0.0            | 202.9          | 0.0          | 3.1          |
| Volusia                                  | 89.4           | 89.4           | 1.4          | 1.4          |
| Wooster                                  | 472.8          | 472.8          | 7.3          | 7.3          |
| Alkaline subsoil Wooster<br>(Now Valois) | 202.9          | 0.0            | 3.1          | 0.0          |
|  | <u>6,479.4</u> | <u>6,479.4</u> | <u>100.0</u> | <u>100.0</u> |

\* Less than 0.1%





TABLE 30  
SOIL EROSION  
CAYUGA INLET SOIL CONSERVATION PROJECT, 1934-1940

|                                       | Acres   | Percent |
|---------------------------------------|---------|---------|
| Recent deposition                     | 0.3     | *       |
| No apparent erosion                   | 615.1   | 9.4     |
| Slight sheet erosion                  | 1,250.5 | 19.2    |
| Moderate to serious sheet erosion     | 4,072.0 | 62.4    |
| Severe sheet erosion                  | 576.6   | 8.8     |
| Very severe sheet erosion             | 3.0     | *       |
| Land slides                           | 0.2     | *       |
| Occasional shallow gullies, crossable | 1.0     | *       |
| Occasional gullies, not crossable     | 157.2   | 2.4     |
| Frequent gullies, not crossable       | 25.0    | 0.4     |

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TABLE  
SLOPE  
CAYUGA INLET SOIL CONSERVATION PROJECT

|    | Acres        | Percent     |
|----|--------------|-------------|
| A  | 377.8        | 11.8        |
| B  | 2,710.4      | 39.7        |
| BB | 1,763.5      | 23.9        |
| C  | 938.8        | 12.6        |
| D  | <u>687.8</u> | <u>12.0</u> |
|    | 6,478.3      | 100.0       |

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\* Less than 0.1% based on 6,518.7 acres



TABLE 31  
SOIL DRAINAGE  
CAYUGA INLET SOIL CONSERVATION PROJECT

|                     | Acres         | Percent     |
|---------------------|---------------|-------------|
| Well drained        | 3,262.8       | 50.4        |
| Imperfectly drained | 1639.9        | 25.3        |
| Poorly drained      | 1,575.6       | 24.3        |
|                     | <hr/> 6,478.3 | <hr/> 100.0 |

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TABLE 32  
SOIL PROFILE CONDITIONS  
CAYUGA INLET SOIL CONSERVATION PROJECT

|                                      | Acres   | Percent |
|--------------------------------------|---------|---------|
| Friable thruout                      | 3,257.9 | 50.3    |
| Hardpan present                      | 1,417.0 | 21.8    |
| Impervious layer near the<br>surface | 1,400.2 | 21.6    |

THE HISTORY OF THE  
CITY OF BOSTON

FROM THE FIRST SETTLEMENT TO THE PRESENT TIME

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THE HISTORY OF THE CITY OF BOSTON

THE HISTORY OF THE CITY OF BOSTON

FROM THE FIRST SETTLEMENT TO THE PRESENT TIME

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TABLE 33  
 LINE CONTENT OF SOIL PROFILE  
 CAYUGA INLET SOIL CONSERVATION PROJECT

| Lime in soil material | Subsoil Reaction            | Acres          | Percent     |
|-----------------------|-----------------------------|----------------|-------------|
| Very low              | Acid                        | 2,947.9        | 47.6        |
| Low                   | Acid                        | 2,109.6        | 34.0        |
| Moderate              | Slightly acid               | 92.5           | 1.5         |
| High                  | Neutral or<br>slightly acid | <u>1,044.8</u> | <u>16.9</u> |
|                       |                             | 6,194.8        | 100.0       |

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TABLE 34  
 ORIGIN OF SOILS  
 CAYUGA INLET SOIL CONSERVATION PROJECT

|                                     | Acres          | Percent      |
|-------------------------------------|----------------|--------------|
| Bottom lands                        | 188.1          | 2.8          |
| Lacustrine                          | 614.6          | 9.5          |
| Terrace and outwash                 | 690.4          | 10.6         |
| Upland till, acid                   | 2,702.3        | 41.4         |
| Upland till, slightly<br>calcareous | 1,998.9        | 30.9         |
| Complex                             | 285.1          | 4.4          |
|                                     | <u>6,479.4</u> | <u>100.0</u> |

1. 關於「中華民國」之定義，應指「中華民國」之國家而言，而非指「中華民國」之政府而言。

2. 關於「中華民國」之定義，應指「中華民國」之國家而言，而非指「中華民國」之政府而言。

3. 關於「中華民國」之定義，應指「中華民國」之國家而言，而非指「中華民國」之政府而言。

4. 關於「中華民國」之定義，應指「中華民國」之國家而言，而非指「中華民國」之政府而言。

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TABLE 35  
 STRIP CROPPING  
 CAYUGA INLET SOIL CONSERVATION PROJECT

|                                    | Acres   | Percent |
|------------------------------------|---------|---------|
| Strips recommended:                |         |         |
| Present as recommended             | 578.8   | 46.6    |
| Modified without damage:           |         |         |
| Removed from cultivation           | 131.2   | 10.6    |
| Strips made wider                  | 160.9   | 12.9    |
| Strips made straighter             | 59.9    | 4.8     |
| Wider and straighter               | 80.7    | 6.5     |
| Modified with damage               | 27.8    | 2.2     |
| Plowed up                          | 147.2   | 11.9    |
| Never laid on the land             | 23.0    | 1.9     |
| Strips not recommended but Present | 22.4    | 1.8     |
|                                    | <hr/>   | <hr/>   |
|                                    | 1,237.7 | 100.0   |

TABLE 36  
 DIVERSION DITCHES BUILT  
 CAYUGA INLET SOIL CONSERVATION PROJECT, 1951-52

|                         | Feet   | Percent |
|-------------------------|--------|---------|
| Working satisfactorily  | 31,350 | 91.0    |
| Silted                  | 2,280  | 6.6     |
| Inadequate buffer strip | 830.   | 2.4     |
|                         | <hr/>  | <hr/>   |
|                         | 34,460 | 100.0   |

Correction Strips -- Out of only 4 correction strips surveyed, one had been plowed up, one removed from cultivation, and two remained as recommended. Their average size was 1.6 acres.

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TABLE 37

TILE DRAINS INSTALLED  
CAYUGA INLET CONSERVATION PROJECT

|   |        |
|---|--------|
| Farms, number                                   | 22     |
| Fields affected, number                         | 49     |
| Fields affected, acreage                        | 189.6  |
| Length of tile, feet                            | 20,043 |
| Acres of fields where:                          |        |
| Recommended and working                         | 123.1  |
| Not-recommended and working                     | 15.5   |
| Recommended and not operating<br>satisfactorily | 51.4   |

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TABLE 38

MISCELLANEOUS DATA

CAYUGA INLET SOIL CONSERVATION PROJECT

|  |              |
|--|--------------|
| Number of farms                                      | 70           |
| Number of fields                                     | 1,617        |
| Project recommendations on:                          |              |
| Hedgerow removal                                     | 90,005 feet  |
| Fence removal  | 266,730 feet |
| Fence building                                       | 132,925 feet |
| Stream bank control                                  | 6,400 feet   |
| Fields with satisfactory waterways                   | 32           |
| Field with satisfactory gully control                | 13           |
| Acres in fields with unsatisfactory<br>open drainage | 44.1         |
| Acres in non-cropland cultivated                     | 224          |

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for the transparency and accountability of the organization.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It highlights the need for a systematic approach to data collection and the importance of using reliable sources of information.

3. The third part of the document focuses on the analysis and interpretation of the collected data. It discusses the various statistical and analytical tools that can be used to identify trends and patterns in the data.

4. The fourth part of the document discusses the implications of the findings and the need for further research. It emphasizes that the results of the study should be used to inform decision-making and to guide the development of policies and programs.

5. The fifth part of the document discusses the limitations of the study and the need for caution in interpreting the results. It highlights that the findings are based on a specific sample and may not be generalizable to other populations.

6. The sixth part of the document discusses the conclusions of the study and the implications for future research. It emphasizes that the findings provide valuable insights into the issues being studied and suggest areas for further investigation.

7. The seventh part of the document discusses the recommendations for action based on the findings. It emphasizes that the results of the study should be used to inform decision-making and to guide the development of policies and programs.

8. The eighth part of the document discusses the acknowledgments and the contributions of the various individuals and organizations that supported the study.

9. The ninth part of the document discusses the references and the sources of information used in the study.

10. The tenth part of the document discusses the appendices and the additional information provided to support the findings of the study.

## V

CONCLUSIONS

It is felt that data presented under part IV supports the following conclusions.

A) On the Method

1. This approach constitutes a sufficiently reliable tool to analyze soil and water conservation, though there is room for considerable improvement towards the theoretical maximum diagnostic value.
2. Validity of individual items as indicators of conservation varies widely. It is not considered advisable to reduce the number of items until more is learned about their behaviour when applied to other areas.

B) On the Cayuga Inlet Project

3. Farms included in the Project are a representative sample of the whole watershed.
4. There has been high adoption of conservation practices, reflecting the large extent to which prolonged effect treatments were carried out by Soil Conservation Service personnel.



5. Persistence of practices is generally good, except for those where the farmers encountered particularly difficult problems.
6. Conservation status appeared to be significantly related to the following items:
  - A) Presence of level land
  - b) Presence of frequent gullies
  - c) Presence of a few soil types, namely, Chippewa, Langford, Dunkirk
  - d) Very poor drainage and also poor one when impervious layer was deep in the profile
  - e) Presence of land of the best economic class (Class IV) in the area
  - f) Presence of woodlots of northern hardwoods, of even age and young growth
  - g) Shift to poultry or no change in farming type
  - h) Grazing intensity of pastures and completeness of vegetation cover, as well as botanical make-up
  - i) Adequate supply of midsummer forage and of water in pastures
  - j) Existence of row crops

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 20. 凡屬我國領土之範圍，均應由我國政府行使主權。

- k) All modifications of strips except  
for turning them into meadow
  - l) Control of streambanks
  - m) Farmer's attitude towards tree  
planting
7. Even though idle land has been reduced from  
17% of the area in 1935 to 9.7% at present,  
it is still far from being eliminated.
  8. There has been an increase in pasture with  
reduction of cropland.
  9. Two-thirds of the farms have new owners.
  10. Drainage problem areas include one-half  
of the acreage. Diversion ditches have  
proved very effective and about two-thirds
  11. Over 70% of the soils are of glacial origin  
and 80% of them low in lime.
  12. Almost one-half of the strips laid on the  
land have been altered to fit changing  
farming needs but, fortunately, most  
modifications do not appear to have been  
harmful.
  13. The Cayuga Inlet Project, taken as a whole,  
has been a clear success and a credit to





those that planned and carried it out.

#### SUMMARY

In spite of the national importance of soil conservation, research on it has been handicapped by the lack of adequate instruments, either to measure conservation status over a given area or to appraise individual practices.

A method to analyze soil and water conservation is proposed here and the kind of information obtainable is illustrated with data from its application to the Cayuga Inlet Soil Conservation Project, New York. This approach is essentially based on the concepts of achievement testing and the findings of soil conservation research.

CHAPTER I

The first part of the history of the United States is the history of the colonies. The colonies were first settled by Englishmen in 1607, and they grew in number and importance until the Revolution in 1776. The colonies were at first dependent on Great Britain, but they gradually became more independent. They had their own laws and customs, and they elected their own representatives to the British Parliament. The British government, however, refused to give the colonies the same rights as the British people. This led to the American Revolution, which was fought from 1775 to 1783. The result of the Revolution was the Declaration of Independence in 1776, and the Constitution of the United States in 1787. The United States has since become a powerful and independent nation.

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The third section details the statistical analysis performed on the collected data. Various tests were conducted to determine the significance of the findings. The results indicate a strong correlation between the variables being studied. This suggests that the factors identified are indeed influential in the context of the research.

Finally, the document concludes with a series of recommendations based on the research findings. These suggestions are aimed at improving the efficiency and accuracy of the processes being analyzed. It is hoped that these insights will be valuable to the organization and other researchers in the field.

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The third section provides a detailed description of the data analysis process. This involves identifying trends, patterns, and anomalies within the dataset. Statistical tools and software were used to facilitate this process, ensuring that the results are both accurate and reliable.

Finally, the document concludes with a summary of the findings and their implications. It highlights the key insights gained from the study and offers recommendations for future research and practice. The author notes that while the current study provides valuable information, there are still several areas that require further investigation.

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented, including the date, amount, and purpose of the transaction. This ensures transparency and allows for easy reconciliation of accounts.

The second part of the document provides a detailed breakdown of the company's financial performance over the past year. It includes a comparison of actual results against budgeted figures, highlighting areas of both strength and weakness. The analysis shows that while revenue has exceeded expectations, certain operational costs have increased significantly, impacting the overall profit margin.

The third part of the document outlines the company's strategic goals for the upcoming year. It focuses on improving operational efficiency, expanding market reach, and investing in research and development to stay competitive in a rapidly changing industry. Key initiatives include streamlining the supply chain, launching new product lines, and strengthening customer relationships.

The fourth part of the document discusses the company's commitment to social responsibility and environmental sustainability. It details various initiatives aimed at reducing carbon emissions, supporting local communities, and ensuring ethical sourcing of materials. These efforts are seen as integral to the company's long-term success and reputation.

The fifth part of the document provides a summary of the company's overall financial health and outlook. It notes that despite challenges, the company remains financially sound and well-positioned to achieve its strategic objectives. The management team is confident in the company's ability to navigate future uncertainties and drive sustainable growth.

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented, including the date, amount, and purpose of the transaction. This ensures transparency and allows for easy reconciliation of accounts.

In the second section, the author provides a detailed breakdown of the monthly budget. It lists various categories such as housing, utilities, food, and entertainment, with specific dollar amounts allocated to each. This helps in understanding where the money is being spent and identifies areas where savings can be made.

The third section focuses on investment strategies. It suggests diversifying investments across different asset classes to reduce risk and maximize returns. The author also mentions the importance of regularly reviewing and rebalancing the investment portfolio to stay aligned with long-term financial goals.

Finally, the document concludes with a summary of key financial principles. It stresses the value of discipline, consistency, and long-term planning in achieving financial success. The author encourages readers to take control of their finances and make informed decisions based on their unique circumstances.



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In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

The third section provides a detailed description of the data analysis process. This involves identifying patterns, trends, and correlations within the data set. Statistical tools and software were used to facilitate this process, ensuring that the results are both accurate and reliable.

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In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

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## APPENDICES

## Cayuga Inlet Soil Conservation Project Farms

- A. Index by communities
- B. Index by cooperators
- C. Index by airphotos
- D. Soil productivity balance blank
- E. Cayuga Inlet Project: Soil type numbers
- F. Cayuga Inlet Project: Correlation of  
soil type numbers with those now  
in use for Tompkins County



APPENDIX A

CAYUGA INLET SOIL CONSERVATION PROJECT FARMS

INDEX BY COMMUNITIES

| <u>Community</u> | <u>Farm No.</u>       | <u>Name</u>         | <u>Code Number</u> |
|------------------|-----------------------|---------------------|--------------------|
| Danby            | D- 6-1-Y              | Emery, Charles      | 01                 |
|                  | D- 6-1-X              | Emery, Charles      | 02                 |
| Ithaca           | I- 6-5-D              | Layen, Fred         | 03                 |
|                  | I- 7-3-X              | Babcock, H. E,      | 04                 |
|                  | I- 7-4-U              | Gaienski, Joseph    | 05                 |
|                  | I- 7-4-X              | Felock, Anthony     | 06                 |
| Newfield         | N- 1-1-A              | Stepan, Frank       | 07                 |
|                  | N- 1-2-F              | Millard, Henry      | 08                 |
|                  | N- 2-0-Z              | Taber, Carl         | 09                 |
|                  | N- 2-1-D              | Payne, Fred         | 10                 |
|                  | N- 2-1-X              | Albright, Mrs. R.C. | 11                 |
|                  | N- 2-1-X              | Poelvoorde, Albert  | 11                 |
|                  | N- 2-2-M              | Babcock H. E.       | 12, 13             |
|                  | N- 3-1-I              | Payne, Fred         | 14                 |
|                  | N- 4-0-T              | Estabrook, E. T.    | 15                 |
|                  | N- 4-1-K              | Payne, Bert         | 16                 |
|                  | N- 4-1-K              | Payne, Bert         | 17                 |
|                  | N- 4-1-R              | Seely, Lenford      | 18                 |
|                  | N- 4-1-Z              | Kippols, Lydia      | 19                 |
|                  | N- 4-2-D              | Kent, Paul          | 20                 |
|                  | N- 4-2-R              | Cutter, Paul        | 21                 |
| N- 4-2-V         | Pipper, Simeon        | 22                  |                    |
| N- 4-3-B         | Bowers, Mrs. Alice M. | 23                  |                    |





## Cayuga Inlet S. C. Project Farms

| <u>Community</u> | <u>Farm No.</u> | <u>Name</u>       | <u>Code<br/>Number</u> |
|------------------|-----------------|-------------------|------------------------|
| New field        | N- 4-3-J        | Pakkala, Wilfred  | 24                     |
|                  | N- 4-3-L        | Rajala, Jacob     | 25                     |
|                  | N- 4-3-L        | Tichenor, Richard | 26                     |
|                  | N- 4-3-D        | Knuuttila, Waind  | 27                     |
|                  | N- 4-4-C        | Patana, William   | 28                     |
|                  | N- 5-0-M        | Hine, Amelia      | 29                     |
|                  | N- 5-1-B        | Payne, Glenn      | 30                     |
|                  | N- 5-1-Z        | Makki, Eugene     | 31                     |
|                  | N- 5-1-R        | Payne, Will       | 32                     |
|                  | N- 5-2-H        | Joki, Matt        | 33                     |
|                  | N- 5-2-Hb       | Joki, Matt        | 34                     |
|                  | N- 5-3-M        | Lintala, Emil     | 35                     |
|                  | N- 5-3-T        | Laine, Oscar      | 36                     |
|                  | N- 5-3-Z        | Ruuspakka, George | 37                     |
|                  | N- 6-1-Z        | Heliseva, John    | 38                     |
|                  | N- 6-2-P        | Parsons, Roy      | 39                     |
|                  | N- 6-3-H        | Lummuka, John     | 40                     |
|                  | N- 6-7-Q        | Hine, Wilbur      | 41                     |
|                  | N- 7-1-S        | Korbell, Joseph   | 42                     |
|                  | N- 7-2-B        | Krejca, Otto      | 43                     |
|                  | N- 7-3-A        | Mazourek, Rudolf  | 44                     |
|                  | N- 7-3-P        | Korbell, William  | 45                     |
|                  | N- 8-1-A        | Blovsky, Frank    | 46                     |
|                  | N- 8-1-B        | Greene, H. E.     | 47                     |
|                  | N- 8-2-B        | Blovsky, Henry    | 48                     |
|                  | N- 8-2-L        | Leonard, Purl     | 49                     |
|                  | N-11-2-C        | Button, George    | 50                     |

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## Cayuga Inlet S. C. Project Farms

| <u>Community</u> | <u>Farm No.</u> | <u>Name</u>         | <u>Code<br/>Number</u> |
|------------------|-----------------|---------------------|------------------------|
| Newfield         | N- 12-1-B       | Seely, Leslie       | 51                     |
|                  | N- 12-1-F       | Makela, Howard      | 52                     |
|                  | N- 12-1-F       | Rice, Mrs, Minna B. | 53                     |
|                  | N- 5-0-X        | Heslop, J. Henry    | 54                     |
| West Danby       | WD- 5-0-X       | Loomis, Everett     | 55                     |
|                  | WD- 5-1-A       | Hunt, Samuel        | 56                     |
|                  | WD- 5-1-R       | Long, Parshall      | 57                     |
|                  | WD- 5-2-H       | Keckman, John       | 58                     |
|                  | WD- 7-1-J       | Ruuspakka, George   | 59                     |
|                  | WD- 7-1-R       | Blomquist, Aarne J. | 60                     |
|                  | WD- 9-1-W       | Knuuttila, Henry    | 61                     |
|                  | WD- 9-1-Z       | Knuuttila, Henry    | 62                     |
|                  | WD-10-1-C       | Ford, Howard        | 63                     |
|                  | WD-11-0-G       | Harker, C. E.       | 64                     |
|                  | WD-11-1-A       | Sincebaugh, Dewitt  | 65                     |
|                  | WD-11-1-B       | Jackson, Eugene     | 66                     |
|                  | WD-11-1-W       | Pertula, Albert     | 67                     |
|                  | WD-11-1-W       | Silmu, Frank        | 68                     |
|                  | WD-11-2-X       | Catchim, A. L.      | 69                     |
|                  | WD-12-1-A       | Pesu, John          | 70                     |



APPENDIX B

CAYUGA INLET SOIL CONSERVATION PROJECT FARMS

BY COOPERATOR

| <u>Name of cooperator</u>           | <u>Farm No.</u> | <u>Photo</u>   | <u>Acres</u> | <u>Code No.</u> |
|-------------------------------------|-----------------|----------------|--------------|-----------------|
| Albright, Demont SEE: Babcock, H.E. |                 |                |              | 12              |
| Albright Demont Farms "A"           |                 |                |              | 13              |
| Albright, Mrs. Roy SEE: Taber, C.   |                 |                |              | 09              |
| Albright, Mrs. R.C. SEE: Poelvoorde | N-2-1-X         | 39             | 119.0        | 11              |
| Babcock, H.E.                       | I-7-3-X         | 41B<br>43A & B | 317.0        | 04              |
| Babcock, H.E. Farm B                | N-2-2-M         | 41             | 82.2         | 12              |
| Babcock, H.E. Farm A                | N-2-2-M         | 41             | 159.2        | 13              |
| Blaker, Mrs. H.L. SEE: Lindsay, W.  |                 |                |              |                 |
| Bomquist, Arne, J.                  | WD-7-1-R        | 33             | 140.6        | 60              |
| Blovsky, Frank                      | N-8-1-A         | 15             | 94.8         | 46              |
| Blovsky, Frank                      | N-8-2-B         | 3              | 108.0        | 48              |
| " "                                 |                 |                |              | 48              |
| Bowers, Mrs. Alice M.               | N-4-3-B         | 35             | 57.8         | 23              |
| Button, George                      | N-11-2-C        | 50             | 97.2         | 50              |
| Catchim, A.L.                       | WD-11-2-X       |                | 39.6         | 69              |
| Cutter, Paul                        | N-4-2-R         | 26,35          | 163.5        | 21              |
| Deyoung, George, SEE: Kent, P.      |                 |                |              | 20              |
| Emery, Charles                      | D-6-1-Y         | 52             | 133.8        | 01              |
| Emery, Charles                      | D-6-1-Y         | 52             | 50.8         | 02              |
| Estabrook, E.T.                     | N-4-0-T         | 22             | 161.0        | 15              |
| Felock, Anthony                     | I-7-4-X         | 41             | 46.7         | 06              |
| Ford, Howard                        | WD-10-1-C       | 37             | 143.0        | 63              |
| Forsman, Allen & Burt SEE: Payne, F |                 |                |              |                 |
| Gaeiski, Joseph                     | I7-4-U          | 41,20          | 17.1         | 05              |
| Greene, N.E.                        | N-8-1-B         | 3              | 68.9         | 47              |

|     |     |     |     |
|-----|-----|-----|-----|
| 1   | 1   | 1   | 1   |
| 2   | 2   | 2   | 2   |
| 3   | 3   | 3   | 3   |
| 4   | 4   | 4   | 4   |
| 5   | 5   | 5   | 5   |
| 6   | 6   | 6   | 6   |
| 7   | 7   | 7   | 7   |
| 8   | 8   | 8   | 8   |
| 9   | 9   | 9   | 9   |
| 10  | 10  | 10  | 10  |
| 11  | 11  | 11  | 11  |
| 12  | 12  | 12  | 12  |
| 13  | 13  | 13  | 13  |
| 14  | 14  | 14  | 14  |
| 15  | 15  | 15  | 15  |
| 16  | 16  | 16  | 16  |
| 17  | 17  | 17  | 17  |
| 18  | 18  | 18  | 18  |
| 19  | 19  | 19  | 19  |
| 20  | 20  | 20  | 20  |
| 21  | 21  | 21  | 21  |
| 22  | 22  | 22  | 22  |
| 23  | 23  | 23  | 23  |
| 24  | 24  | 24  | 24  |
| 25  | 25  | 25  | 25  |
| 26  | 26  | 26  | 26  |
| 27  | 27  | 27  | 27  |
| 28  | 28  | 28  | 28  |
| 29  | 29  | 29  | 29  |
| 30  | 30  | 30  | 30  |
| 31  | 31  | 31  | 31  |
| 32  | 32  | 32  | 32  |
| 33  | 33  | 33  | 33  |
| 34  | 34  | 34  | 34  |
| 35  | 35  | 35  | 35  |
| 36  | 36  | 36  | 36  |
| 37  | 37  | 37  | 37  |
| 38  | 38  | 38  | 38  |
| 39  | 39  | 39  | 39  |
| 40  | 40  | 40  | 40  |
| 41  | 41  | 41  | 41  |
| 42  | 42  | 42  | 42  |
| 43  | 43  | 43  | 43  |
| 44  | 44  | 44  | 44  |
| 45  | 45  | 45  | 45  |
| 46  | 46  | 46  | 46  |
| 47  | 47  | 47  | 47  |
| 48  | 48  | 48  | 48  |
| 49  | 49  | 49  | 49  |
| 50  | 50  | 50  | 50  |
| 51  | 51  | 51  | 51  |
| 52  | 52  | 52  | 52  |
| 53  | 53  | 53  | 53  |
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| 55  | 55  | 55  | 55  |
| 56  | 56  | 56  | 56  |
| 57  | 57  | 57  | 57  |
| 58  | 58  | 58  | 58  |
| 59  | 59  | 59  | 59  |
| 60  | 60  | 60  | 60  |
| 61  | 61  | 61  | 61  |
| 62  | 62  | 62  | 62  |
| 63  | 63  | 63  | 63  |
| 64  | 64  | 64  | 64  |
| 65  | 65  | 65  | 65  |
| 66  | 66  | 66  | 66  |
| 67  | 67  | 67  | 67  |
| 68  | 68  | 68  | 68  |
| 69  | 69  | 69  | 69  |
| 70  | 70  | 70  | 70  |
| 71  | 71  | 71  | 71  |
| 72  | 72  | 72  | 72  |
| 73  | 73  | 73  | 73  |
| 74  | 74  | 74  | 74  |
| 75  | 75  | 75  | 75  |
| 76  | 76  | 76  | 76  |
| 77  | 77  | 77  | 77  |
| 78  | 78  | 78  | 78  |
| 79  | 79  | 79  | 79  |
| 80  | 80  | 80  | 80  |
| 81  | 81  | 81  | 81  |
| 82  | 82  | 82  | 82  |
| 83  | 83  | 83  | 83  |
| 84  | 84  | 84  | 84  |
| 85  | 85  | 85  | 85  |
| 86  | 86  | 86  | 86  |
| 87  | 87  | 87  | 87  |
| 88  | 88  | 88  | 88  |
| 89  | 89  | 89  | 89  |
| 90  | 90  | 90  | 90  |
| 91  | 91  | 91  | 91  |
| 92  | 92  | 92  | 92  |
| 93  | 93  | 93  | 93  |
| 94  | 94  | 94  | 94  |
| 95  | 95  | 95  | 95  |
| 96  | 96  | 96  | 96  |
| 97  | 97  | 97  | 97  |
| 98  | 98  | 98  | 98  |
| 99  | 99  | 99  | 99  |
| 100 | 100 | 100 | 100 |

## Cayuga Inlet Soil Conservation Project Farms

B2

| <u>Name of cooperator</u>         | <u>Farm No.</u> | <u>Photo</u> | <u>Acres</u> | <u>Code No.</u> |
|-----------------------------------|-----------------|--------------|--------------|-----------------|
| Harker, C.E.                      | WD-11-0-G       | .            | 126.7        | 64              |
| Heliseva, John                    | N-6-1-Z         | 13,24        | 111.8        | 38              |
| Heslope, J. Henry                 | N-5-0-X         | 22           | 5.2          | 54              |
| Hine, Amelia                      | N-5-0-M         | 22           | 69.9         | 29              |
| Hine, Wilbur                      | N-6-7-Q         | 13           | 169.5        | 41              |
| Hokkenen, Albert SEE:Blomquist A. |                 |              |              | 60              |
| Hunt, Samuel Jr.                  | WD-5-1-A        | 54           | 108.2        | 56              |
| Jackson, Eugene                   | WD-11-1-B       | 52           | 104.1        | 66              |
| Joki, Matt                        | N-5-2-H         | 24           | 78.3         | 33              |
| Joki, Matt                        | N-5-2-Hb        | 26           | 42.4         | 34              |
| Keckman, John R.                  | WD-5-2-H        | 56,63        | 99.3         | 58              |
| Kent, Paul                        | N-4-2-D         | 24           | 74.0         | 20              |
| Kinney, Leon A. SEE:Greene, N.E.  |                 |              |              | 47              |
| Kippola, Lydia Lathes             | N-4-1-Z         | 24           | 76.8         | 19              |
| Knuutila, A.SEE:Knuutila, Waind   |                 |              |              | 27              |
| Knuutila, Waind                   | N-4-3-D         | 26,35        | 131.0        | 27              |
| Knuutila, Henry Farm "B"          | WD-9-1-W        | 50,48        | 120.0        | 61              |
| Knuutila, Henry Farm "A"          | WD-9-1-Z        | 50           | 66.5         | 62              |
| Korbell, Joseph                   | N-7-1-S         | 15           | 29.0         | 42              |
| Krobell, Rudolph SEE:Korbell, W.  |                 |              |              | 45              |
| Korbell, William                  | N-7-3-P         | 5            | 71.0         | 45              |
| Krejca, Otto                      | N-7-2-B         | 13           | 92.7         | 43              |
| Laine, Oscar                      | N-5-3-T         | 26           | 184.0        | 36              |
| Lamkin, Almon SEE: Cutter, P.     |                 |              |              | 21              |
| Lathes, Lydia SEE: Kippola, Lydia |                 |              |              |                 |
| Layen, Fred                       | I-6-5-D         | 48           | 116.8        | 03              |
| Leonard, Purl                     | N-8-2-L         | 3            | 83.8         | 49              |





## Cayuga Inlet Soil Conservation Project Farms

B3

| <u>Name of Cooperator</u>          | <u>Farm No.</u> | <u>Photo</u> | <u>Acres</u> | <u>Code No.</u> |
|------------------------------------|-----------------|--------------|--------------|-----------------|
| Linsay, Willis SEE:Ruuspakka, G    |                 |              |              | 59              |
| Lintala, Emil                      | N-5-3-M         | 26,35        | 130.5        | 35              |
| Lintala, Matt SEE: Lintala, Emil   |                 |              |              | 35              |
| Long, Parshall                     | WD-5-1-R        | 56           | 109.8        | 57              |
| Loomis, Everett                    | WD-5-0-X        | 54           | 47.3         | 55              |
| Lummuka, John                      | N-6-3-H         | 11           | 102.5        | 40              |
| Makela, Howard                     | N-12-1-P        | 20           | 133.5        | 52              |
| Makki, Emil SEE: Makki, Eugene     |                 |              |              | 31              |
| Makki, Eugene                      | N-5-1-Z         | 24           | 178.0        | 31              |
| Mazoureck, Ladislav SEE:Makela, H. |                 |              |              | 52              |
| Mazoureck Rudolph                  | N-7-3-A         | 5            | 70.6         | 44              |
| Millard, Henry                     | N-1-2-F         | 20           | 66.2         | 08              |
| Pakkala, John SEE:Tichener, R.     |                 |              |              | 26              |
| Pakkala, Matt SEE: Pakkala,W.      |                 |              |              | 24              |
| Pakkala, Wilfred                   | N-4-3-J         | 26,35        | 87.0         | 24              |
| Parsons, Roy                       | N-6-2-P         | 13           | 72.2         | 39              |
| Patana, Williams                   | N-4-4-C         | 35           | 146.6        | 28              |
| Payne, Bert Farm "B"               | N-4-1-K         | 37.          | 90.6         | 16              |
| Payne, Bert Farm "A"               | N-4-1-K         | 24           | 142.8        | 17              |
| Payne, Fred                        | N-2-1-D         | 22           | 126.2        | 10              |
| Payne, Fred                        | N-3-1-I         | 2467         | 77.0         | 14              |
| Payne, Glenn                       | N-5-1-B         | 6595         | 57.5         | 30              |
| Payne, Will                        | N-5-1-R         | 24           | 121.4        | 32              |
| Pertula, Albert                    | WD-11-1-W       | 37           | 55.1         | 67              |
| Pesu, John                         | WD-12-1-A       | 52           | 64.9         | 70              |
| Pipper, Simeon                     | N-4-2-V         | 37           | 57.0         | 22              |
| Poelvoorde, Albert                 | N-2-1-X         | 39           | 193.4        | 11              |

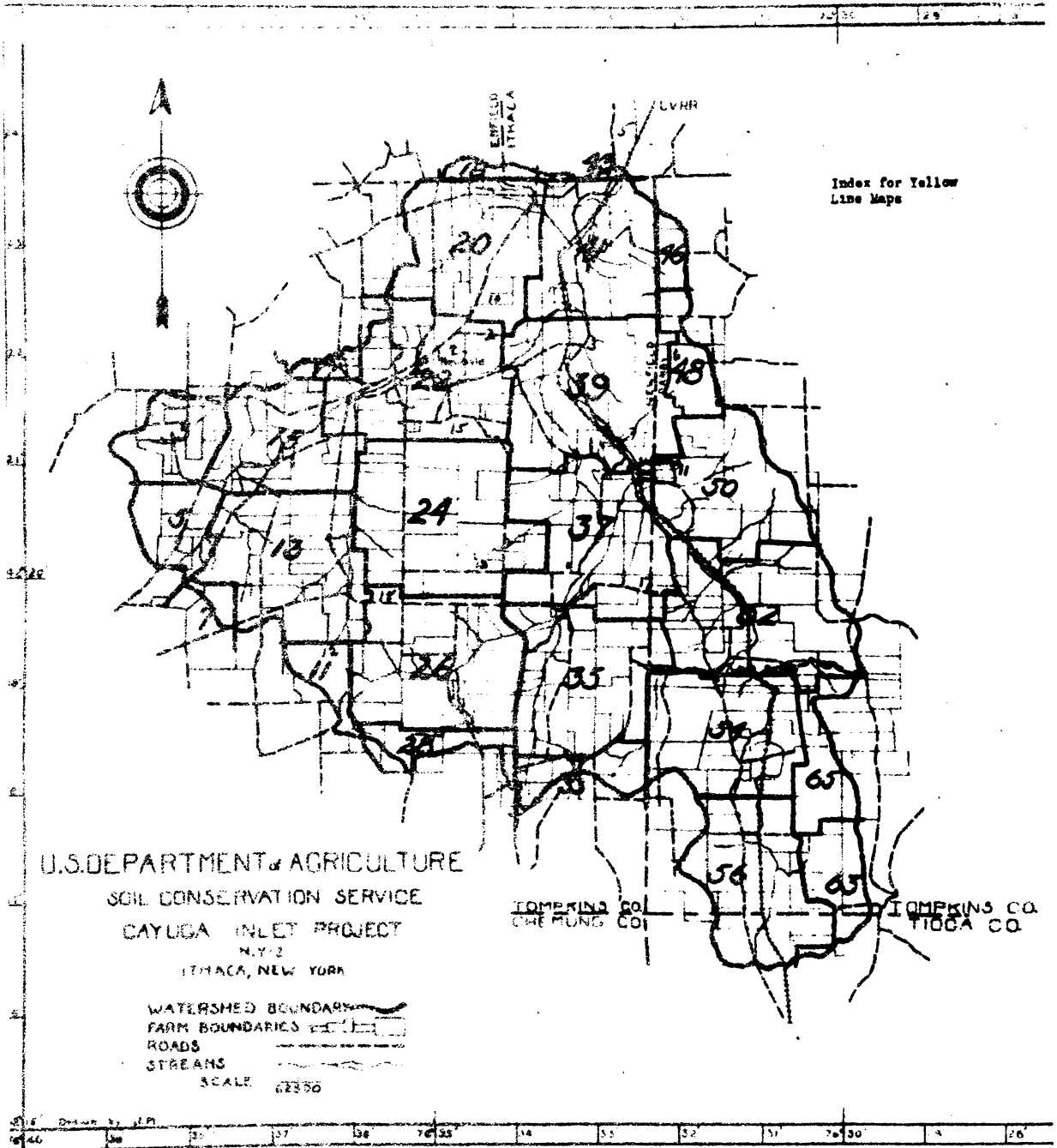
The history of the United States is a story of growth and change. From the first European settlers to the present day, the nation has evolved through various stages of development. The early years were marked by exploration and the establishment of colonies. The American Revolution led to the birth of a new nation, and the subsequent decades saw the expansion of territory and the growth of industry. The Civil War was a pivotal moment in the nation's history, leading to the abolition of slavery and the strengthening of the federal government. The late 19th and early 20th centuries were characterized by rapid industrialization and the rise of big business. The Progressive Era sought to address the social and economic problems of the time. The 20th century has been a period of significant change, with the United States emerging as a global superpower. The Vietnam War and the civil rights movement were major events of this era. Today, the United States continues to face new challenges and opportunities in a rapidly changing world.

## Cayuga Inlet Soil Conservation Project Farms

B4

| <u>Name of cooperator</u>         | <u>Farm No.</u> | <u>Photo</u> | <u>Acres</u> | <u>Code No.</u> |
|-----------------------------------|-----------------|--------------|--------------|-----------------|
| Rajala, Jacob                     | N-4-3-L         | 35           | 55.2         | 25              |
| Rice, Mrs. Minna B                | N-12-1-F        | 20           | 30.8         | 53              |
| Ruuspakka, Atte SEE: Ruuspaka, G. |                 |              |              | 37              |
| Ruuspakka, George                 | N-5-3-Z         | 28,33,35     | 127.3        | 37              |
| Ruuspakka, George                 | WD-7-1-J        | 33,35        | 110.7        | 59              |
| Seely, Lenford                    | N-4-1-R         | 24           | 64.0         | 18              |
| Seely, Leslie                     | N-12-1-B        | 20           | 85.9         | 51              |
| Silmu, Frank                      | WD-11-1-W       | 37           | 73.6         | 68              |
| Sineebaugh, Dewitt E.             | WD-11-1-A       | 52,37        | 28.5         | 65              |
| Stepan, Frank                     | N-1-1-A         | 20           | 102.8        | 07              |
| Stepan, Joseph SEE: Stepan, F.    |                 |              |              | 07              |
| Taber, Carl                       | N-2-0-2         | 22           | 111.8        | 09              |
| Tichenener, Richard               | N-4-3-L         | 35,37        | 79.8         | 26              |

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| 1700 | 1701 | 1702 | 1703 | 1704 | 1705 |
| 1706 | 1707 | 1708 | 1709 | 1710 | 1711 |
| 1712 | 1713 | 1714 | 1715 | 1716 | 1717 |
| 1718 | 1719 | 1720 | 1721 | 1722 | 1723 |
| 1724 | 1725 | 1726 | 1727 | 1728 | 1729 |
| 1730 | 1731 | 1732 | 1733 | 1734 | 1735 |
| 1736 | 1737 | 1738 | 1739 | 1740 | 1741 |
| 1742 | 1743 | 1744 | 1745 | 1746 | 1747 |
| 1748 | 1749 | 1750 | 1751 | 1752 | 1753 |
| 1754 | 1755 | 1756 | 1757 | 1758 | 1759 |
| 1760 | 1761 | 1762 | 1763 | 1764 | 1765 |
| 1766 | 1767 | 1768 | 1769 | 1770 | 1771 |
| 1772 | 1773 | 1774 | 1775 | 1776 | 1777 |
| 1778 | 1779 | 1780 | 1781 | 1782 | 1783 |
| 1784 | 1785 | 1786 | 1787 | 1788 | 1789 |
| 1790 | 1791 | 1792 | 1793 | 1794 | 1795 |
| 1796 | 1797 | 1798 | 1799 | 1800 | 1801 |



AIRPHOTO NUMBERS



## APPENDIX C

## CAYUGA INLET SOIL CONSERVATION PROJECT FARMS

## INDEX BY AIRPHOTOS

| <u>Photo No.</u> | <u>Farm<br/>Code No.</u> | <u>Farm<br/>Project No.</u> | <u>Name</u>        |
|------------------|--------------------------|-----------------------------|--------------------|
| 3                | 47                       | N-8-1-B                     | Greene, N.E.       |
| 3                | 48                       | N-8-2-B                     | Blovsky, Henry     |
| 3                | 49                       | N-8-2-L                     | Lecnard, Purl      |
| 5                | 44                       | N-7-3-A                     | Mazeureck, Rudolph |
| 5                | 45                       | N-7-3-P                     | Krobell, William   |
| 11               | 40                       | N-6-3-H                     | Lummuka, John      |
| 13               | 38                       | N-6-1-Z                     | Heliseva, John     |
| 13               | 39                       | N-6-2-P                     | Parsons, Roy       |
| 13               | 41                       | N-6-7-Q                     | Hine, Wilbur       |
| 13               | 43                       | N-7-2-B                     | Krejca, Otto       |
| 15               | 42                       | N-7-1-S                     | Korbell, Joseph    |
| 15               | 46                       | N-8-1-A                     | Blovsky, Frank     |
| 20               | 05                       | I-7-4-U                     | Gaieski, Joseph    |
| 20               | 07                       | N-1-1-A                     | Stepan, Frank      |
| 20               | 08                       | N-1-2-F                     | Millard, Henry     |
| 20-              | 51                       | N-12-1-B                    | Seely, Leslie      |
| 20               | 52                       | N-12-1-F                    | Makela, Howard     |
| 20               | 53                       | N-12-1-F                    | Rice, Minna        |
| 22               | 09                       | N-2-0-Z                     | Taber, Carl        |
| 22               | 10                       | N-2-1-D                     | Payne, Fred        |
| 22               | 15                       | N-4-0-T                     | Estabrook, E.T.    |
| 22               | 29                       | N-5-0-M                     | Hine, Amelia       |
| 22               | 54                       | N-5-0-X                     | Heslop, J. Henry   |
| 24               | 17                       | N-4-1-K                     | Payne, Bert        |





| <u>Photo No.</u> | <u>Farm Code No.</u> | <u>Farm Project No.</u> | <u>Name</u>       |
|------------------|----------------------|-------------------------|-------------------|
| 24               | 18                   | N-4-1-R                 | Seely, Lenford    |
| 24               | 19                   | N-4-1-Z                 | Kippola, Lydia    |
| 24               | 20                   | N-4-2-D                 | Kent, Paul        |
| 24               | 30                   | N-5-1-E                 | Payne, Glenn      |
| 24               | 31                   | N-5-1-Z                 | Makki, Eugene     |
| 24               | 32                   | N-5-1-R                 | Payne, Will       |
| 24               | 33                   | N-5-2-H                 | Joki, Matt        |
| 24               | 38                   | N-6-1-Z                 | Heliseva, John    |
| 26               | 21                   | N-4-2-R                 | Cutter, Paul      |
| 26               | 24                   | N-4-3-J                 | Pakkala, Wilfred  |
| 26               | 27                   | N-4-3-D                 | Knuutila, Waind   |
| 26               | 34                   | N-5-2-Hb                | Joki, Matt        |
| 26               | 35                   | N-5-3-M                 | Lintala, Emil     |
| 26               | 36                   | N-5-3-T                 | Lane, Oscar       |
| 28               | 37                   | N-5-3-Z                 | Ruuspakka, George |
| 33               | 37                   | N-5-3-Z                 | Ruuspakka, George |
| 33               | 59                   | WD-7-1-J                | Ruuspakka, George |
| 33               | 60                   | WD-7-1-R                | Blomquist, Aarne  |
| 35               | 21                   | N-4-2-R                 | Cutter, Paul      |
| 35               | 23                   | N-4-3-B                 | Bowers, Alice     |
| 35               | 25                   | N-4-3-L                 | Rajala, Jacob     |
| 35               | 26                   | N-4-3-L                 | Tichener, Richard |
| 35               | 27                   | N-4-3-D                 | Knuutila, Waind   |
| 35               | 28                   | N-4-4-C                 | Patana, William   |
| 35               | 37                   | N-5-3-Z                 | Ruuspakka, George |
| 35               | 59                   | WD-7-1-J                | Ruuspakka, George |
| 37               | 16                   | N-4-1-K                 | Payne, Bert       |



| <u>Photo No.</u> | <u>Farm Code No.</u> | <u>Farm Project No.</u> | <u>Name</u>                                 |
|------------------|----------------------|-------------------------|---|
| 37               | 22                   | N-4-2-V                 | Pipper, Simeon                              |
| 37               | 26                   | N-4-3-L                 | Tichener, Richard                           |
| 37               | 63                   | WD-10-1-C               | Ford, Howard                                |
| 37               | 65                   | WD-11-1-A               | Sincebaugh, Dewitt                          |
| 37               | 67                   | WD-11-1-W               | Pertula, Albert                             |
| 37               | 68                   | WD-11-1-W               | Silmu, Frank                                |
| 39               | 11                   | N-2-1-X                 | Albright, Mrs. Roy C.<br>Poelvoorde, Albert |
| 39               | 64                   | WD-11-0-G               | Harker, C.E.                                |
| 39               | 69                   | WD-11-2-X               | Catenim, A.L.                               |
| 41               | 06                   | I-7-4-X                 | Felock, Anthony                             |
| 41               | 13                   | N-2-2-M                 | Babcock, H.E.                               |
| 48               | 03                   | I-6-5-D                 | Layen, Fred                                 |
| 48               | 61                   | WD-9-1-W                | Knuutila, Henry                             |
| 50               | 50                   | N-11-2-C                | Button, George                              |
| 50               | 51                   | WD-9-1-W                | Knuutila, Henry                             |
| 50               | 62                   | WD-9-1-Z                | Knuutila, Henry                             |
| 50               | 64                   | WD-11-0-G               | Harker, C.E.                                |
| 52               | 01                   | D-6-1-Y                 | Emery, Charles                              |
| 52               | 65                   | WD-11-1-A               | Sincebaugh, Dewitt                          |
| 52               | 66                   | WD-11-1-B               | Jackson, Eugene                             |
| 52               | 70                   | WD-12-1-A               | Pesu, John                                  |
| 54               | 55                   | WD-5-0-X                | Loomis, Everett                             |
| 54               | 56                   | WD-5-1-A                | Hunt, Samuel                                |
| 56               | 57                   | WD-5-1-R                | Long, Parshall                              |
| 56               | 58                   | WD-5-2-H.               | Keckman, John                               |
| 63               | 58                   | WD-5-2-H                | Keckman, John                               |



## APPENDIX E

### CAYUGA INLET PROJECT - SOIL TYPE NUMBERS

#### Alphabetical list

Alkaline subsoil Wooster, 17, (now Valois)

Arkport, 35, (now Dunkirk)

Aurora, 58

Barrien, 65

Braceville, 24

Camillus, 49

Canaden, 29

Cazenovia, 42

Chagrin, 15

Chenango, 12, 22

Chippewa, 4

Crosby, 73

Darien, 72

Dunkirk, 25, 35 (formerly Arkport)

Eel, 6

Erie, 13, 53 (now Langford)

Farmington, 71, 81

Fremont, 23, 43 (now Mardin)

Genesee, 15

Gravel deposits, 3

Graby, 39

Groton, 37, 36 (now Palmyra)

Herkimer, 47

Hilton, 57

Holly, 14

Honeoye, 78

今日无事

明日无事

后日无事

再后日无事

又再后日无事

更再后日无事

且再后日无事

也再后日无事

矣再后日无事

乎再后日无事

哉再后日无事

矣再后日无事

乎再后日无事

哉再后日无事

矣再后日无事

乎再后日无事

哉再后日无事

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哉再后日无事

矣再后日无事

乎再后日无事

哉再后日无事

矣再后日无事

乎再后日无事

哉再后日无事

Howard, 21, 31  
Langford, 18, 53 (Formerly Erie)  
Lansing, 52  
Lordstown, 1, 41  
Lyons, 74  
Marcellus, 59  
Mardin, 28, 43 (formerly deep Phase Fremont)  
Maumee, 14  
Mentor, 75  
Middlebury, 6  
Mixed patches, 46  
Mohawk, 44  
Muck, 9, 19  
Ontario, 77  
Otisville, 26  
Ottawa, 48  
Palatine, 61  
Palmyra, 32, 36 (formerly Groton)  
Petosky, 55  
Poygan, 39  
Schoharie, 45  
Silt deposits, 33  
Small bottoms, 16  
Tioga, 5  
Tyler, 38  
Valoia, 17 (formerly Alkaline subsoil Wooster)  
Volusia, 2, 63





Alphabetical list

Wayland, 14

Wooster, 7, 17 (now Valoia)

Numerical List

- 1 Lordstown
- 2 Volusia
- 3 Gravel deposits
- 4 Chippewa
- 5 Tioga
- 6 Eel and Middlebury
- 7 Wooster
- 9 Poorly-drained muck
- 12 Chenango fine sandy loam
- 13 Erie
- 14 Holly, Wayland and Maumee
- 15 Chagrin and Genesee
- 16 Small bottoms
- 17 Alkaline subsoil Wooster
- 18 Langford
- 19 Well-drained muck
- 21 Howard fine sandy loam
- 22 Chenango gravelly loam
- 23 Fremont
- 24 Braceville
- 25 Dunkirk silty clay loam
- 26 Otisville
- 28 Mardin
- 29 Cananda



- 31 Howard gravelly loam
- 32 Palmyra
- 33 Silt deposits
- 35 Arkport fine sandy loam
- 36 Groton gravelly loam
- 38 Tyler
- 39 Granby & Poygan
- 41 Deep Lordstown
- 42 Cazenovia
- 43 Fremont deep phase
- 44 Mohawk
- 45 Schoharie
- 46 Mixed patches
- 47 Herkimer
- 48 Ottawa
- 49 Camillus
- 52 Lansong
- 53 Erie deep phase
- 55 Petrosky
- 57 Hilton
- 58 Aurora
- 59 Marcellus
- 61 Palatine
- 63 Volusia deep phase
- 65 Berrien
- 71 Farmington
- 72 Darien
- 73 Crosby

CHAPTER IV

THE HISTORY OF THE CITY OF BOSTON  
FROM THE FOUNDATION OF THE COLONY  
TO THE PRESENT TIME

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FROM THE FOUNDATION OF THE COLONY  
TO THE PRESENT TIME

THE HISTORY OF THE CITY OF BOSTON  
FROM THE FOUNDATION OF THE COLONY  
TO THE PRESENT TIME

Numerical List

- 74 Lyons
- 75 Mentor
- 77 Ontario
- 78 Honeye
- 81 Farmingron deep phase



APPENDIX F

SOIL SURVEY CORRELATION GUIDE

| <u>Cayuga Inlet Project</u>    | <u>Tompkins County District</u>                                     |
|--------------------------------|---|
| 1 Lordstown                    | Si41 Lordstown eh. si. loam   |
| 2 Volusia                      | 842 Volusia eh. si. loam  |
| 3 Gravel deposits              | 16 Undifferentiated alluvial  |
| 4 Chippewa                     | 940 Chippewa silt loam  |
| 5 Tioga                        | A140 Tioga silt loam  |
| 6 Eel and Middlebury           | { A410 Eel silt loam (Alkaline)<br>A440 Middlebury silt loam (Acid) |
| 7 Wooster                      | 142 Wooster gr. si. loam  |
| 9 Poorly-drained muck          | MU Muck, undrained  |
| 12 Chenango fine sandy loam    | T143 Chenango gravelly loam   |
| 13 Erie                        | 831 Erie gravelly silt loam   |
| 14 Holly, Wayland and Maumee * | { A710 Wayland silt loam (alkaline)<br>A740 Holly silt loam (acid)  |
| 15 Chagrin and Genesee         | A110 Genesee silt loam  |
| 16 Small bottoms               | 16 Undifferentiated alluvial  |
| 17 Alkaline subsoil Wooster    | 133 Valois gr. loam   |
| 18 Langford                    | 631 Langford gr. si. loam   |
| 19 Well-drained muck           | MU Muck, drained  |
| 21 Howard fine sandy loam      | T1313 Howard gravelly loam  |
| 22 Chenango gravelly loam      | T143 Chenango gravelly loam   |
| 23 Fremont                     | 8411 Fremont ch. si. loam   |
| 24 Braceville                  | T440 Braceville silt loam   |
| 25 Dunkirk silty clay loam     | { L110 Dunkirk silt loam<br>L110 Dunkirk silty clay loam            |
| 26 Otisville                   | T143 Chenango gravelly loam   |
| 28 Mardin                      | 6411 Mardin ch. si. loam  |
| 29 Caneadea                    | L522 Caneadea silty clay loam                                       |

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Cayuga Inlet ProjectTompkins County District

|                            |   |
|----------------------------|---|
| 31 Howard gravelly loam    | T1313 Howard gravelly loam                  |
| 32 Palmyra                 | T113 Palmyra gravelly loam                  |
| 33 Silt deposits           | 16 Undifferentiated alluvial                |
| 35 Arkport fine sandy loam | L110 Dunkirk silt loam                      |
| 36 Groton gravelly loam    | T113 Palmyra gravelly loam                  |
| 38 Tyler                   | T740 Red hook silt loam                     |
| 39 Granby & Poygan         | L0154 Granby fine sandy loam                |
| 41 Deep Lordstown          | 8141 Lordstown eh. si. loam                 |
| 42 Cazenovia               | 2111 Cayuga gravelly silt loam              |
| 43 Fremont deep phase      | 6411 Mardin eh. si. loam                    |
| 44 Mohawk                  | S141 Kashong shaly si. loam                 |
| 45 Schoharie               | L110 Dunkirk silt loam                      |
| 46 Mixed patches           | 16 Undifferentiated alluvial                |
| 47 Herkimer                | T113 Palmyra gravelly loam                  |
| 48 Ottawa                  | L0416 Ottawa loamy fine sand                |
| 49 Camillus                | S141 Kashong shaly silt loam                |
| 52 Lansing                 | 121 Lansing gr. silt loam                   |
| 53 Erie deep phase         | 631 Langford gr. si. loam<br>(badly eroded) |
| 55 Petrosky                | L0114 Arkport fine sandy loam               |
| 57 Hilton                  | 421 Conesus gr. silty loam                  |
| 58 Aurora                  | S530 Aurora silt loam                       |
| 59 Marcellus               | 421 Conesus gr. silt loam                   |
| 61 Palatine                | S131 Kashong shaly silt loam                |
| 63 Volusia deep phase      | 641 Canfield eh. silt loam                  |
| 65 Berrien                 | L0416 Ottawa loamy fine sand                |
| 71 Farmington              | S131 Kashong shaly silt loam                |
| 72 Darien                  | 520 Darien silt loam                        |



Cayuga Inlet ProjectTompkins County District

|                          |                              |
|--------------------------|------------------------------|
| 73 Crosby                | 511 Ovid gr. silt loam       |
| 74 Lyons                 | 910 Lyons silt loam          |
| 75 Mentor **             | T1313 Howard gravelly loam   |
| 77 Ontario               | 133 Valois gravelly loam     |
| 78 Honeoye ***           | 1113 Honeoye gravelly loam   |
| 81 Farmington deep phase | S131 Kashong shaly silt loam |

Notes:

- \* Maumee occupies nearly flat depressions; is developed from sandy soils, alkaline in reaction. Covered with water much of the time. Now mapped Westland or F.W. marsh.
- \*\* Mentor is an alkaline stream terrace soil with considerable silt in its structure. Howard silt loam would be a better substitute.
- \*\*\* It is very doubtful if Lansing or Honeoye is found in this area. Cayuga and Valois are more probable.



## SOIL TYPE LEGEND FOR THE TOMPKINS COUNTY DISTRICT

The origin of the soil is indicated by the following letters:

- |                               |  |
|-------------------------------|--|
| A- Alluvial flood plain soils | L- Lacustrine soils                                      |
| H- High bottom alluvial soils | S- Shallow upland soils, 20-40"<br>to bed rock           |
| F- Fan phase soils            | V- Very shallow upland soils,<br>20" or less to bed rock |
| T- Terrace soils              | No letter - Deep upland soils.                           |

The drainage-profile condition is indicated by the following numbers:

- 0- Well drained, loose, porous profile (may be dreaghty)
- 1- Well drained, friable, mellow profile.
- 2- Well drained, with heavy layer in the profile
- 3- Well drained, with compact layer in the profile.
- 4- Imperfectly drained, with high water table, or impervious layer deep in the profile.
- 5- Imperfectly drained, with heavy layer in the profile
- 6- Imperfectly drained, with hardpan in the profile
- 7- Poorly drained, with high water table, or impervious layer deep in the profile.
- 8- Poorly drained, with high water table or impervious layer shallow in the profile.
- 9- Very poorly drained, with high water table or impervious layer in the profile.

The lime content is indicated by the following numbers:

- 1- Soil material high in lime, with neutral or slightly acid subsoils.
- 2- Soil material moderate in lime, with slightly acid subsoils
- 3- Soil material containing lime, with acid subsoils.
- 4- Soils acid throughout.





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